

# THE SCHOOL REVIEW

A JOURNAL OF SECONDARY EDUCATION

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VOLUME XXIV

FEBRUARY 1916

NUMBER 2

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## COURSES IN SPECIAL METHODS OF TEACHING FOR HIGH SCHOOLS, WITH REFERENCE TO MATHEMATICS

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We no longer believe that mere knowledge of subject-matter is the only prerequisite for a teacher of any subject. At the same time we have no desire to minimize the importance of adequate instruction in a range of subject-matter broad and inclusive enough to meet the needs of the prospective teacher. Certainly a wise study of the problems in teaching any subject should be based upon a solid foundation of knowledge in that subject. What we want to do, if possible, is to secure the proper relation between the two points of "method" and "matter" so that one may not be neglected for the other. It is not our purpose in this paper, however, to discuss the subject-matter that should form a proper basis for the prospective teacher, but rather to discuss special methods of handling the subject-matter which our prospective teacher has in his possession when he enters the special-methods course, together with a treatment of whatever subject-matter it may seem necessary to give during the period of instruction. In making a study of the situation the writer has attempted to survey somewhat the history and development of the training of secondary

<sup>1</sup> Paper read before College Teachers of Education at the Minnesota Educational Association at Minneapolis, October 29, 1915.

teachers, especially teachers of secondary mathematics, in Europe and in the United States, with some suggestions in the light of this study as to what may be done with profit in a special-methods course in mathematics.

Twenty years ago little attention was paid to the needs of prospective teachers of secondary subjects, especially to prospective teachers of secondary mathematics. Evidently it never occurred to many college teachers that large numbers of their students were to be the teachers of the next generation and that, as such, they should go out well prepared to give adequate instruction. According to the report of the American Commissioners of the International Commission on the Teaching of Mathematics, "no separate institutions for the training of secondary teachers existed." It seems almost incredible that such an important profession as that of teaching should not have received more consideration. Some of us believe that it is not yet receiving all of the attention that it deserves. For some years past, however, methods courses of one type or another have been offered in many of our leading normal schools and colleges. And the organization of colleges of education throughout the land which are offering special-methods courses in the different subjects is evidence enough that school people generally are beginning to recognize the need for a more technical study of the art of teaching.

The fact remains that a large majority of teachers in this country have had no such preparation in special methods and their only asset is a knowledge of the subject-matter which they are to teach. In many cases even the latter is very meager and inadequate. The report of the American Commissioners of the International Commission on the Teaching of Mathematics says:

The average newly appointed teacher of mathematics is a college graduate who has had only about one year's work (from 90 to 180 class hours) of mathematics beyond the work of the school in which he teaches. The average preparation includes no strictly professional training, no course in the teaching of mathematics to initiate the candidate into the teacher's mode of viewing the events of the classroom. Consequently he enters upon his work with but little mathematical knowledge in advance of his pupils, and with no training at all in the technique of the work he is about to undertake. He is essentially a former pupil, somewhat matured by the general experience of his college

studies and life, come back to teach his quondam fellows. If successful in his work, he develops into a good teacher, at the expense of many mistakes, more or less numerous and serious, according to his measure of native aptitude for the work of a teacher.

On all sides we hear the cry for supervision of teaching. A kind of teaching that results from the sort of preparation described above often amounts to mere telling. It is a shame that such a teacher, especially the new and inexperienced, should be left alone to worry with the thousand problems with which he must surely grapple and often with little success. In spite of all that has been done to improve technique in teaching, there are still many schools which, if they are not entirely ignoring the need for special-methods courses, are surely "marking time" so far as progress is concerned.

But we are in the midst of a great sea of "pedagogical unrest," and we must face the situation with courage and with some degree of security of our moorings if we are to add anything constructive in the way of progressive action. Among the schools which have been giving special-methods courses, remarkable progress has been made in general pedagogical considerations and this has led to a renewed study of the needs of special subjects as modifications of the general situation.

European countries as well as our own have begun to realize the need of a more centralized system for the training of secondary teachers, and in some of these countries, especially in Germany, the need for special training is not so great as it is in many parts of our own country. "The Preparation of Mathematics Teachers" was to have been the main topic of discussion of the International Commission on the Teaching of Mathematics at Munich, Germany, in August, 1915.

This universal "unrest" and desire for improvement in the technique of teaching has led to a more serious study of the situation than formerly and the result has been that many radical changes and reforms, both in the subject-matter and in the teaching of secondary subjects, have been suggested. Until recently most of these proposed changes have been offered with reference to subjects such as the languages and the sciences, but in some cases there have been very marked changes proposed for the

mathematics courses. Commissioner Snedden<sup>1</sup> of Massachusetts and Superintendent Morrison<sup>2</sup> of New Hampshire are ardent advocates of reform both in the subject-matter and in the teaching of secondary mathematics. A dean<sup>3</sup> of one of our best-known colleges of education has recently said, "The social value of geometry has been relatively unchanged in two thousand years," and he adds, "Though geometry may have been the best mathematics available for youth in past centuries, it does not follow that it continues to be the best subject-matter available at the present time." While we may not agree with all of the opinions of different advocates of reform, we must admit that there is some room for improvement both in subject-matter and in methods of teaching.

As a result of all this agitation, teachers of mathematics have begun to ask themselves whether they are really offering the best courses in the most efficient manner. In particular, the people interested in education are beginning to get together and are trying to formulate plans and to organize special-methods courses that will most nearly meet the reasonable demands of the time for progressive action and which will at the same time function the best in the future classroom instruction of the prospective teacher.

The writer of this paper has had the privilege of being in such a conference of teachers and has heard the frank admission from more than one well-known teacher of methods that he realized that his course was not what it should be, that a great deal of his material was "filler," and that something definite should be done to improve the courses in special methods.

The testimony of practice teachers with whom the writer has had some experience has been that they gained a great deal from the methods courses in the way of historical material and knowledge of subject-matter, but since they began to teach they realized that they had received little information about the technique of teaching. It is well known that much of this technical information cannot be given as some of the methods courses are now handled.

<sup>1</sup> *School and Society*, May 1, 1915, p. 621; also *American Mathematical Monthly*, April, 1915, p. 119.

<sup>2</sup> *Thirteenth Yearbook of the National Society for the Study of Education*, Part I.

<sup>3</sup> Parker, *Methods of Teaching in High Schools*, p. 60.

Another severe criticism that is often heard is that there is a great deal of duplication of subject-matter in the so-called methods courses. One student said that he had taken three different methods courses and had received a certain amount of instruction that was practically the same in all. Such courses should be reorganized or the student should have his course arranged so that such duplication would be impossible. The solution no doubt involves the "getting together" of the group of people giving the methods courses. Certain standards and programs should be set up that will not permit of so much repetition and accompanying waste.

Four ways have been offered by means of which prospective teachers may profitably proceed:<sup>1</sup>

1. By reading the published results of the experience of others. In connection with this method of improvement it ought to be said that such works as Young's *The Teaching of Mathematics*, Smith's *The Teaching of Elementary Mathematics* and *The Teaching of Geometry*, Schultze's *The Teaching of Mathematics in Secondary School*, and Evans' *The Teaching of High-School Mathematics* have been prolific sources of information and help to a large number of prospective teachers.

2. By personal consultation with experienced teachers. This is always a helpful method of improvement if the experienced teacher is a good teacher.

3. By observing teachers at work. In the report of Committee No. 8 of the International Commission on the Teaching of Mathematics (p. 30) we find this statement: "It is believed by many that the best pedagogical training comes through careful and diligent study of the subject-matter under the guidance of an inspiring teacher who knows how to exhibit good methods and to impress them by example, rather than precept, upon the students." There is much in this statement provided the methods teacher is qualified to do a high type of teaching.

4. By actual teaching. It is said by some that actual teaching, even if it amounts purely to the trial-and-error method, is the best methods course in mathematics.

<sup>1</sup> Adapted from Young, *The Teaching of Mathematics*, p. 8.

Whatever else be included, it seems clear to the writer that all of the four methods above should have a part in any special-methods course.

We have referred in the first part of this paper to the situation twenty years ago in our own country with reference to the training of secondary teachers in mathematics and we have mentioned several points concerning the present situation. A little study of the development of the situation may add to a better understanding of the whole question of training teachers.

According to the report of the American Commissioners of the International Commission on the Teaching of Mathematics,<sup>1</sup> there were at least five different schools twenty years ago which established courses on the teaching of algebra and geometry which, together with a course on general pedagogy, formed a certain professional training for high-school teaching in mathematics. Up to 1900 only four other colleges were known by this committee to have added to their programs courses on the pedagogy of mathematics. From 1900 to 1910 about twenty-five other colleges besides those referred to above developed courses such as "The History and Pedagogy of Secondary Mathematics," "The Teaching of Mathematics in Secondary Schools," and "Teachers' Course in Algebra and Geometry." "For the other high-school studies, such as Latin, English, German, physics, and chemistry, there has been a corresponding development of professional courses on the teaching of these subjects."

In 1911 there were at least twelve schools of education in this country with provisions for professional training, and since that time others have been organized.

There are at the present time a few normal colleges, separate from any university or college, where the work in the training of teachers is of as high grade as that of the colleges and leads ultimately to the Bachelor's degree.

The difference between the work offered by these schools of education and normal colleges and that offered by a university department is that professional courses of study are found to be broader in scope and more technical, i.e., the courses in the latter

<sup>1</sup> *Bulletin No. 12, 1911.*

often include directed observation and supervised practice teaching in some high school.

In each of the schools reported on by the American Commissioners

the minimum training of a professional nature for secondary work is a definitely organized course on the teaching of secondary mathematics. . . . This course varies in length from 17 to 90 hours of class work, the average for all of the institutions being 48 hours. The methods of handling the course is, in general, by lectures, recitations on assigned readings, discussions, written reports, and quizzes. The subject-matter of this course varies somewhat in each institution though certain topics are common to practically all of the courses.

The committee prepared a composite syllabus of a tentative maximum course based on the syllabi sent in by the leading institutions.

The course treats of such topics as the reasons for teaching algebra and geometry, the historical development of these subjects and of the methods of presenting them, the world's best literature concerning the teaching of mathematics, the mathematical curriculum in American and foreign secondary schools, the adaptation of a curriculum to the needs of various types of schools, a study of typical American and foreign texts for secondary schools, and the various movements to reform the teaching of secondary mathematics at home and abroad. Some attention is often given to the methods of conducting a recitation in mathematics with discussions of the heuristic method, the laboratory method, the no-text method, etc. The course also contains a review of typical parts of algebra and geometry offering scientific or pedagogic difficulties, such as the number system of algebra, equivalent equations, factoring, theory of exponents, simultaneous quadratic equations, graphic solutions, the foundations of geometry, the sequence of propositions, the treatment of parallels, loci, limits, incommensurable cases, methods of attacking exercises in geometry, and the nature of the problems and exercises of algebra and geometry. The reading of current periodical literature on the teaching of mathematics and the discussion of such topics as teaching algebra and geometry together, the fusion of plane and solid geometry, etc., are often included.

Such books as Smith's *The Teaching of Elementary Mathematics* and *The Teaching of Geometry*, and Young's *The Teaching of Mathematics* are frequently used as outlines or texts for such a course. Fine's *College Algebra and Number System of Algebra*, Chrystal's *Algebra*, and the histories of mathematics by Ball, Fink, Cajori, Gow, and Allman are frequently reported as reference books.

The prerequisites for the above course are one year of college mathematics in about half of the cases and through the calculus in the others. Even where

the former requirement exists, it usually happens that most of the students have had the calculus and such courses as the theory of equations and projective geometry as a minimum preparation before entering the pedagogical course. This pedagogical course is normally taken in the Senior year.

In a few of the schools offering the teachers' courses, systematic work in observation and practice teaching was given in connection with the methods work several years ago. This work was carried on either in a high school connected with the school of education or by a special arrangement in the public city high schools.

At the present time the College of Education of the University of Minnesota does both. The University High School is not large enough to accommodate all of the students who want to observe and teach; so an arrangement has been made with Superintendent Spaulding of the Minneapolis city schools whereby prospective teachers may do observation and practice teaching in the public high schools.

In order to find out what is being done in this country at the present time in special-methods courses in the teaching of mathematics, the writer made a survey of several of the leading schools of this country. These schools were asked to report on what they were doing in their special-methods courses in mathematics and to contribute any further ideas they might have as to what they thought ought to constitute such a course.

It was not possible to secure replies to all the inquiries sent out, but from those received the writer has collected a few interesting facts.

1. One school has three different teachers' courses: one for those without experience, one for graduate students who have had experience, and one for teachers of applied mathematics.
2. In nearly all of the methods courses such texts as Young's *The Teaching of Mathematics* and Smith's *The Teaching of Elementary Mathematics* are used as references.
3. Some offer no special-methods courses at all.
4. The average time given is from two to three hours per week per semester.
5. Very few have directed observation in connection with the methods courses in mathematics.

6. Only one or two schools out of those reporting require any teaching in connection with the methods course in mathematics.
7. In a few cases at least two methods courses are required.
8. In several schools a great deal of the time is given over to a discussion of historical material and subject-matter with a minimum of reference to technique in teaching and the real live problems of the classroom.

The study which the writer has made has not been complete enough to include all the important facts that may exist in regard to special-methods courses, but from the replies sent in it is clear that not enough emphasis seems to be given in many of these courses to directed observation of high-school work and to technique of teaching.

As a result of all this study of special-methods courses, together with his own experience in the classroom and personal consultation with many high-school teachers and practice students who have taken courses in special methods in mathematics, the writer wishes to submit some suggestions in regard to tentative special-methods courses in mathematics in the hope that in the near future the adoption of standards and further study may give us a type of training that will meet the demands of the time.

I. Special-methods courses should be organized so as to give more time (at least some time) to directed observation and teaching by the trial-and-error method. This will be possible only where high-school classes are accessible.

II. The student teacher's course should be so clearly outlined and the prerequisites<sup>1</sup> so set up that a great deal of the material now given in special-methods courses may give way to the directed observation and practice teaching referred to above. There is no reason why the training for teaching may not be made as efficient and definite as for law, medicine, or engineering.

III. The person giving the methods course should, if possible, be in actual contact with the classroom while the observation or practice teaching is being done by his student teachers. He may be the head of the mathematics department in the high school, the

<sup>1</sup> See *Bulletin No. 14, 1912*, U.S. Bureau of Education, on "Proposed Minimum Requirement."

head of the mathematics department in the college of education, or he may be a member of the college or university department of mathematics, but in any case he ought to see what is going on at the time his methods class sees it. He may actually teach the class himself or he may take the class to observe the work of some good high-school teacher. If the high-school teacher is a good one, it is perhaps better for the methods teacher to look on with his student teachers. In this way he gets a fuller and more spontaneous reaction from these students in subsequent discussions of the classroom situation.

IV. These discussions of the classroom situation ought to afford the most excellent opportunities for instruction in technique. The classroom will thus be serving the student teacher in much the same way as the clinic and hospital experience as interne serve the prospective physician.

V. If any students are asked to teach, those working first should be carefully selected from the stronger members of the class and if possible from those who may have had a little experience. In no case should a student who is not entirely capable be given absolute control of a class. This of course must be left to the judgment of the person giving the methods course. If necessary, the student should be helped in making his plan when he first begins to teach and should be judged by the way in which he uses it.

VI. Students should be required to do some observing<sup>1</sup> in classes other than in the class and in the subject which they expect to teach so as to make some comparisons of the recitations visited in regard to such items as:

A. Teachers:

1. Personality and preparation of teachers
2. Routine factors of recitation
3. Devices
4. Discipline
5. Assignment

B. Pupils:

1. Interest in and attitude toward subject
2. Quality of oral and written work
3. Deportment

<sup>1</sup> See "Suggestive Outlines for Observation" on p. 5 of the *Report and Recommendations of the Joint Committee on Practice Teaching*, published by the University of Minnesota.

VII. A few of the first meetings of the class in special methods may have to be devoted to a discussion of methods of taking notes on the classroom situation which the student teachers are to observe or they may not receive a maximum of profit from their visitations. The amount of time spent on such discussions will vary with the school. The "Record of Teaching Efficiency" prepared by the College of Education of the University of Chicago will furnish special-methods teachers with many ideas as to what things may be looked for in visits to the classroom.

The following directions to students who are to do directed visiting may be helpful:

1. Try to reach the classroom which you are to visit a little before time for the recitation to begin. Introduce yourself if possible, and tell the teacher in charge why you are there. The average teacher does not care as a rule to have people coming into his classes after the recitation has begun. Stay if possible until the recitation is over. This is as important as getting there on time. Be courteous enough to pay the very best attention to all that takes place while you are in the room.

2. Remember that real criticism is constructive as well as adverse. Nobody ever gets the most from his visiting who is always looking for a chance to give the teacher a "black eye." The truth is perhaps that there are more chances to compliment devices and to gain inspiration than we think.

3. Do not become so engrossed in the work as to forget to jot down significant points, and by all means give information that is definite and to the point concerning the recitation. Be sure you have something from the recitation in "black and white" to substantiate what you may say concerning it. Do not be afraid to be detailed in your statements. Such comments as "The teacher's methods were efficient," "The way he handled a slow pupil was interesting," are absolutely worthless as intelligent comments on any recitation. Describe in detail some of the methods used and the subsequent reactions, show how the slow pupil was dealt with, and present the situation from beginning to end. Only in this way can we successfully handle individual differences.

4. What attitude have the pupils toward the work? Is there a spirit of co-operation between the teacher and the pupils?

How do the pupils respond to the tasks set for them by the teacher?

5. Is the teacher giving the pupil any good habits of study? Is there any reference to independent work outside of class? Is there any provision made for instructing the slow pupils outside of the recitation?

6. Note the routine factors of the situation such as lighting, ventilation, seating arrangement, material equipment for the subject to be taught, etc.

7. Study the recitation as a whole. Does the teacher ask good questions? Write down significant ones. Do the pupils show great interest by volunteering or do they respond only when called upon by the teacher? Does the teacher use sarcasm? Are there any questions of discipline at all? How does the teacher handle them? What would you do if you were in charge? Is the recitation of such a nature that new problems arise in class? Does the teacher equip the pupils for the handling of these problems?

8. Do not form any final opinion of a teacher upon the basis of the visits of a day or even of a week. A fair judgment will involve careful visiting over a longer period of time.

9. Keep your notes carefully and neatly and do not destroy them. They will probably be of use to you later when you go out to teach.

VIII. In addition to the discussions regarding what is seen from time to time in the classroom, it ought to be possible to work in discussions of certain questions which are of importance to the beginning teacher.

1. The student teacher should be prepared to answer three important questions relating to the subject of mathematics: why it is taught, what is taught, and how it is taught. The answer to the first question involves a study of the purpose and value of the study of mathematics. The teacher must know all he can about the why of the teaching, not only that he may be able to inform others of the purpose and value of teaching mathematics, but also because he needs to keep the place and function of mathematics in the curriculum clear in his own mind. In no other way can we

secure the best teaching.<sup>1</sup> The answer to the second question is determined largely by the makers of courses of study and by those who are responsible for the selection of textbooks. However, the teacher is always free to let his own independent notions guide him largely in this matter; therefore some attention certainly should be paid in a special-methods course in training prospective teachers to a review of courses of study and texts in a constructive way. However, the study of the subject itself is the important thing. A well-trained teacher should be able to get along without a text if necessary. It might be well at this point to consider also how the nature and content of courses of study may be modified by such items as the character of the community in the midst of which the high school must function, the length of the prescribed course, the relation of mathematics to the other courses in a particular school, and the available equipment for carrying on such a course. The answer to the third question, how it is taught, involves a study of methods and modes. The classroom ought to furnish abundant opportunities for a discussion of this question since it is not likely that in any classroom one method will be used exclusively. For an excellent treatment of "methods and modes" the reader is referred to chap. iii in Young's *The Teaching of Mathematics*.

2. As suggested above, the student should be helped in making his plan if necessary when he first begins to teach and should be judged by the way in which he uses it. Later the question of lesson plans<sup>2</sup> ought to be discussed fully with regard to their purpose, guiding principles underlying their construction, types to be considered; and, finally, the actual writing of such plans should be required of all, for whether the student teaches in the practice school or not, we are preparing him no doubt for a larger school of practice where it is of equal if not greater importance that he know just exactly what he wants to accomplish during the recitation.

3. Then it is of some importance that the recitation itself be considered with reference to (a) its traditional function and (b) present-day views.

<sup>1</sup> See Young, *The Teaching of Mathematics*, chap. ii.

<sup>2</sup> See McMurry, *The Method of the Recitation*, p. 329.

4. Some attention should be paid to a study of the psychology<sup>1</sup> of the subject as illustrated by the following suggestive studies:

A. A study of the arrangement of material in certain texts to see if the order is psychological.

B. A study of the problem of individual differences with regard to the following items:

1. Proof of the existence of the problem
2. Normal probability curve
3. The need for supervision
4. Value of study classes—teaching children how to study<sup>2</sup>
5. Consideration of slow and fast workers<sup>3</sup>
6. Methods
7. Reference material

C. A study of present standards and measurements of mental ability in regard to

1. Significance of movement
2. Historical and classroom study of tests in arithmetic and algebra such as the Curtis, Monroe, and Thorndyke tests
3. Grading of test papers in mathematics with and without standards<sup>4</sup>  
Here it seems to the writer is the place to raise the following questions with the teacher students:
  - a) Importance of deciding what points other different questions are to test
  - b) What weights shall be given to the correct answers of these questions
  - c) Whether pupils should know at the outset the relative importance of parts
  - d) Necessity of teaching children to pick out the problems they are sure they can do first so as to use more efficiently the time allotted for the test
  - e) Departmental methods of grading final examinations

Then there are several other items of interest and importance which may be taken up and discussed in a special-methods course:

1. A list of reference books suitable for the high-school pupils and for the teachers should be made.<sup>5</sup> There are certain works

<sup>1</sup> In this connection Judd's *Psychology of High School Subjects* is very helpful.

<sup>2</sup> See McMurry, *How to Study*.

<sup>3</sup> The reader is referred to articles by Schorling in the *School Review*, October and December, 1915, on "The Problem of Individual Differences in the Teaching of Secondary-School Mathematics."

<sup>4</sup> In this connection Professor Cajori's article in the *Proceedings of the Central Association of Science and Mathematics Teachers* for 1913 is very interesting.

<sup>5</sup> See the suggestive list at the end of this paper.

which the high-school pupils can appreciate, such as Ball's *Primer of the History of Mathematics* and *Mathematical Recreations and Problems*. The teacher should be put in touch with certain books on special method, such as Young's *Teaching of Mathematics*, should be informed about the bulletins issued by the Department of Education at Washington, and should become familiar with standard sources of mathematical information.

2. The discussion of what should constitute a minimum of equipment and a means of obtaining the same should be discussed and some concrete conclusions reached.

3. The value of an exhibit of the work of the pupils in mathematics.

4. The place and value of mathematical clubs in the school.

5. The value of mathematical contests between classes or schools carried on in much the same fashion as a contest in public speaking.

Every student in the methods course should be required to prepare a term paper on a subject that has as concrete and valuable a setting as possible. For example, one of the students in the special-methods course at the University of Minnesota is visiting every day a third-year class which is taking unified mathematics, and for his term paper he is going to give his opinion as to the advisability of unifying the algebra and trigonometry in the third year.

At the close of the semester surely some written test should be required of all students. This test should be of such a nature that from the results the instructor may be able to find out those who have really grasped the significant features of the course and give the proper justice where credit is due.

A great deal of what has been said for the special-methods course in mathematics applies equally well to the special-methods courses in the other subjects. In any event it is the hope of the writer that whatever may have been said here will not be considered as final but only as tentative suggestions for your thoughtful consideration.

### A LIST OF REFERENCE BOOKS AND MAGAZINES FOR TEACHERS OF MATHEMATICS IN HIGH SCHOOLS

#### I. Books of a general pedagogical nature:

1. Parker, *Methods of Teaching in High Schools*. Ginn & Co.
2. Judd, *The Psychology of High School Subjects*. Ginn & Co.

These two books are the best of their kind available and are extremely interesting and helpful. Every teacher of high-school mathematics should read them.

#### II. Books on the teaching of mathematics:

1. Young, *The Teaching of Mathematics*. Longmans, Green, & Co.
2. Young, *The Teaching of Mathematics in Prussia*. Longmans, Green, & Co.
3. Smith, *The Teaching of Elementary Mathematics*. Macmillan.
4. Smith, *The Teaching of Geometry*. Ginn & Co.
5. Schultze, *The Teaching of Mathematics in Secondary Schools*. Macmillan.
6. Safford, *Mathematics Teaching*. D. C. Heath & Co.
7. Evans, *The Teaching of High School Mathematics*. Houghton Mifflin Co.
8. Nunn, *The Teaching of Algebra (Including Trigonometry)*. Longmans, Green, & Co.
9. Branford, *A Study of Mathematical Education*. Clarendon Press.
10. Carson, *The Teaching of Geometry*. Longmans, Green, & Co.
11. Carson, *Mathematical Education*. Ginn & Co.

A familiarity with all of the books listed above is sure to increase the interest and efficiency of any high-school teacher of mathematics.

#### III. Books relating to mathematical topics, intended to improve the teaching of mathematics:

1. Young, *Fundamental Concepts of Algebra and Geometry*. Macmillan.
2. Young, *Monographs on Topics of Elementary Mathematics Relevant to the Elementary Field*. Longmans, Green, & Co.
3. Manning, *Non-Euclidean Geometry*. Ginn & Co.
4. Manning, *Fourth Dimension*. Munn & Co.
5. Hilbert, *The Foundations of Geometry*. Open Court Publishing Co.
6. Klein, *Famous Problems in Elementary Geometry*. Ginn & Co.
7. Conant, *The Number Concept*. Macmillan.
8. Fine, *The Number System of Algebra*. D. C. Heath & Co.
9. Heath, *The Thirteen Books of Euclid*. Cambridge University Press.
10. DeMorgan, *Study and Difficulties of Mathematics*. Open Court Publishing Co.
11. Lagrange, *Lectures on Elementary Mathematics*. Open Court Publishing Co.

12. Poincaré, *Science and Hypothesis*. Science Press.
13. Russell, *Essay on the Foundations of Geometry*. Cambridge University Press.
14. Chrystal, *Algebra*, 2 vols. A. & C. Black.
15. Manning, *Irrational Numbers*. Wiley & Sons.

IV. Books containing recreational material:

1. Ball, *Mathematical Recreations and Problems*. Macmillan.
2. White, *A Scrap-Book of Elementary Mathematics*. Open Court Publishing Co.
3. Jones, *Mathematical Wrinkles*. S. I. Jones, Gunter, Tex.
4. Sykes, *Source Book for Geometry*. Allyn & Bacon.
5. Schubert, *Mathematical Essays*. Open Court Publishing Co.
6. Abbott, *Flatland*. Little, Brown & Co.
7. Manning, *Fourth Dimension*. Munn & Co.
8. DeMorgan, *Budget of Paradoxes*. Open Court Publishing Co.
9. Leacock, *Literary Lapses*. John Lane, New York.
10. Cheever, *The King of Calculators*. E. J. Cheever, Little Rock, Ark.

V. Books of historical nature:

1. Ball, *A Short History of Mathematics*. Macmillan.
2. Ball, *A Primer of the History of Mathematics*. Macmillan.
3. Cajori, *A History of Mathematics*. Macmillan.
4. Fink, *A Brief History of Mathematics*. Open Court Publishing Co.
5. Gow, *History of Mathematics*. Cambridge University Press.
6. Allman, *Greek Geometry from Thales to Euclid*. Longmans, Green, & Co.
7. Stamper, *A History of the Teaching of Elementary Geometry*. Teachers College, Columbia University.
8. Jacobs, *The Seven-Tellers*. Hermann von Jacobs, Berlin, Germany.

VI. Books available as texts:

1. A representative selection from all the standard older texts and the modern texts on high-school mathematics should be in the teacher's library and he should be able to choose from this list texts that would suit his purpose.

VII. Magazines:

1. Of a mathematical nature:
  - a) *The Mathematics Teacher*. The Mathematics Teacher, Syracuse, N.Y.

This is the only journal dealing entirely with mathematics in the secondary school. It contains many helpful articles for mathematics teachers.

b) *The American Mathematical Monthly.* B. F. Finkel, Treasurer, Springfield, Mo.

This magazine deals chiefly with mathematics foreign to the secondary-school field, but it is a very good thing for the high-school teacher to make it the means of helping him on to higher knowledge.

c) *School Science and Mathematics.* Mount Morris, Ill.

Though not of a strictly mathematical nature, this magazine contains some very stimulating articles for high-school teachers of mathematics and keeps them in closer touch with the allied sciences.

d) Two good technical magazines, e.g., *Scientific American* and the *Scientific American Supplement*.

2. Of a general nature:

a) *School Review.* University of Chicago Press, Chicago, Ill.

b) *School and Society.* Science Press, Harrison, N.Y.

These two magazines are two of the most stimulating and helpful sources of information for high-school teachers.

## ART COURSES IN HIGH SCHOOLS

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Courses which deal with art in some way or other are now to be found in practically all high schools of any recognized standing. School boards realize that unless a study of art is included in the curriculum most of the pupils will probably develop no systematic acquaintance with this field of historical material. Their enjoyment of art will depend upon accidental influence, while the building up of aesthetic standards, so necessary to industrial and artistic progress, will be neglected. Works of art present, at first hand or through the medium of reproductions, actual material which has been worked upon by people of different lands and times. If rightly directed, the study of this material gives a peculiarly intimate contact, by a means other than and supplementary to that of language, with the aesthetic ideals embodied in works of art. It discovers also the way in which styles have developed, and the manner in which the work of one period or country has influenced that of another. Art material is of genuine value for all courses, from the classical to the industrial. Its influence is equally strong in the realm of academic culture and in the field of commercial industry.

Theoretically, few high schools are willing to permit a neglect of this field. In practice, however, superintendents and principals do not always find it easy to decide upon the nature and program of the courses in art. In almost every instance the following difficulties present themselves:

1. Seldom are there any accepted standards of attainment in drawing or design in elementary schools, which can serve as a dependable basis for high-school work in art. High-school instructors very frequently find it necessary to proceed on the assumption that the entering classes know little or nothing of the subject.

2. The majority of high-school instructors have been trained in art-school customs of teaching, and these studio customs, even

in the cases where one is justified in designating them as methods, are generally adapted only to those who possess special aptitude for drawing. These methods minister to interest where it already exists but are seldom planned to develop interest where it is lacking. The instructor gathers his knowledge of education only incidentally, and is therefore more likely to be interested in art for art's sake than in the place of art in general education.

3. The tradition is still prevalent that art is in a peculiar sense a special subject which has little of value to offer except for persons of unique and rare inherent gifts. There is, therefore, a tendency for only a talented few to elect that subject in high schools. As a natural consequence courses are likely to be adapted to these few. Fortunately our educational and industrial progress is making clear the fact that art has very much the same sort of relation to rare aptitudes on the one hand and general abilities on the other that literature or mathematics possesses, or in fact any other subject which opens a vista for a high degree of specialization and at the same time touches common experience at innumerable points.

Under present conditions, what sort of courses will minimize these difficulties and meet the very general need of the whole student body for some kind of art education, neglecting neither those who have nor those who have not special artistic inclinations? In answer to this question, courses of three sorts are suggested, as follows:

I. Courses in drawing and design which are closely connected with industrial subjects, as, for example, with shopwork and with household art. The articulation of these courses is dependent upon sympathetic co-operation between the teacher of constructive work and the teacher of art. This co-operation is too often limited to occasional conferences, as a result of which there is a more or less incidental discovery of a common ground. The articulation becomes much more vital when the courses are related administratively. A method which has proved workable consists in a program arrangement which allows the periods in drawing and in the shopwork or household art laboratory to alternate. This arrangement makes certain that in drawing and design the pupils shall be provided with definite material in which they are already interested constructively. In the shop the children are busy with

plans for changing this material into forms which are useful and in good taste. This prospective or actually occurring change in the material awakens an interest in many pupils who display no enthusiasm in representing "still life."

In courses thus dovetailed, the work in drawing and design tends to follow these general lines:

1. Drawing to describe construction. This requires:

a) Sketches directly from objects. These involve all the principles of perspective and proportions that are studied when drawing is taught as an isolated studio subject.

b) Sketches for the purpose of experimenting with ideas.

c) Patterns and working drawings which embody the results of previous experimentation.

2. Design for construction and decoration. This requires:

a) Consideration of the materials and other specifications for the object, and of the conditions under which it is to be used, and experimentation with, and comparison of, various possibilities to determine which is best fitted to the purposes in view.

b) Study of good styles and the adaptation of them to the problem in hand. In any particular instance, for example in the designing of furniture or of costume, this involves on the one hand a study of the history and development of styles and a knowledge from books and museums of the best which the past has produced, and on the other, a practical acquaintance with modern products and processes and with the current fashions, as displayed in trade literature and advertisements and in stores.

One objection to co-ordinating art and shop courses which is sometimes offered is that drawing proceeds more swiftly than constructive work and therefore in closely articulated courses it must mark time while waiting on the slower processes of actual construction. This difficulty may be readily met, because drawing and design can be indefinitely elaborated at any point by the use of related problems with which there is not time to deal in terms of actual construction. The study of perspective can be carried farther than the actual needs of construction demand. Light and shade may be introduced, etc. In designing, the opportunities for study and practice in drawing, composition, and color related to the problems in hand are unlimited. In studying design

the problems need not and should not be confined to the actual making of designs. Much experience in choosing from many possibilities, such as those offered in a department store, is in many cases of equal value. Furniture, vases, wall paper, and the many other articles of general use furnish good opportunity for practical selection, which exercises taste in a manner different from that involved in actual designing and making. Ability to choose from among proffered designs, rather than to originate designs, is after all what people are called upon most often to exercise.

One frequently meets the objection that by such courses as these art is made the handmaid of industry. The vigor with which this is urged is usually in obverse ratio to the knowledge of the objector regarding the history of the conditions under which the best art, fine and industrial, has been produced. Fig. 1 shows drawings worked out in a high-school class in the School of Education, where the class periods for drawing alternated with those for shopwork.

II. Courses in pictorial drawing. In general aim these courses correspond somewhat to the traditional high-school art course and appeal more particularly to pupils with special art interests. Their appeal will be much wider than that of the traditional high-school art course, however, if the instructor notices the development in art interests which generally takes place at about the time children enter high school. The chief characteristics of these maturing interests as compared with those of elementary-school children appear to be in general as follows:

1. At high-school age children show more ability to appreciate and to make use of theory in connection with practice. This is notably true in regard to perspective, light and shade, color and composition. My observation leads me to conclude that it is a mistake to present, except very incidentally, any of the theory of these subjects to children in the lower elementary grades, or any considerable amount in the upper grades.

2. At high-school age children readily develop an interest in technical style and in the artistic possibilities of different mediums and tools. Each of the various mediums in common use—pencil, pen and ink, charcoal, etching, water colors, and oil colors—has its unique possibilities of treatment, which, when mastered, con-

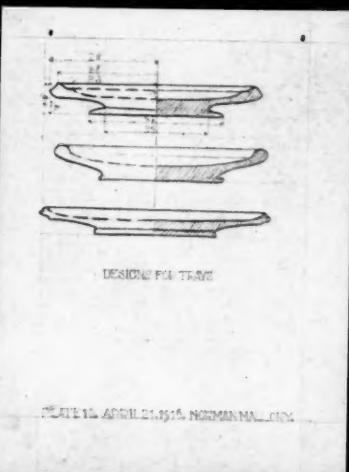
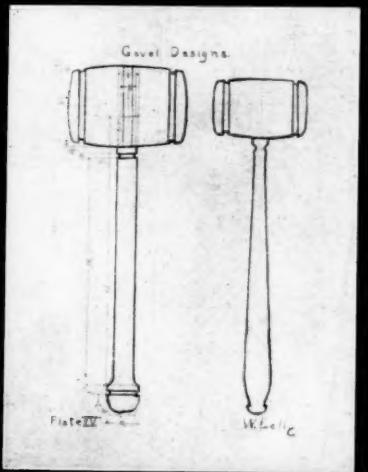
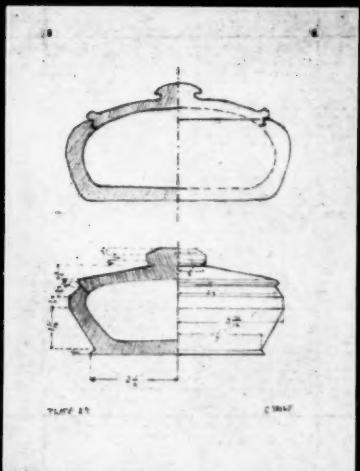
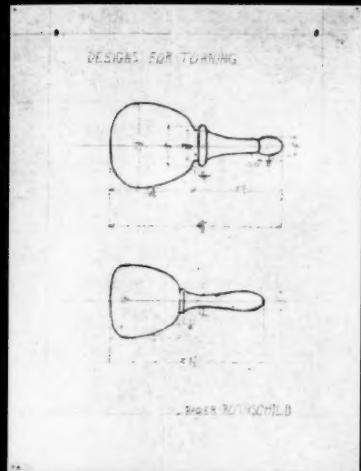


FIG. 1



stitute a particular beauty of style. The clean-cut brilliancy of the absolute blacks of pen and ink differs essentially from the softer tones and graded grays of pencil. Both of these present a contrast to the massed shades of charcoal. Water color differs from oil color in the tones it can produce and the moods it can express. Each medium by its nature compels a different analysis of the appearances which it is used to represent, in a way comparable to that in which various languages by their structure compel different analyses of thought.

One important element of artistic enjoyment consists in an appreciation of the appropriateness of the medium to the subject, and the satisfaction in perceiving that many of the elements of style are the inevitable outgrowth of the nature of the medium. We may be interested in the cleverness which succeeds in making water color imitate oil or embroidery simulate painting, or pen and ink copy the photograph, but we cannot admire the taste.

With this point of view practice with any given medium has only as its preliminary aim the mastery of the more elemental technical difficulties of that medium. Its final and more important aim is an introduction to the historic ways in which that medium has been used as a means of artistic expression, and an appreciation of the kinds of interpretation of ideas and beauty of style for which it is peculiarly appropriate. This knowledge of the characteristics of different mediums gives a new and definite interest to the study of works of art, and furnishes one of the means of comparing excellence with mediocrity and of contrasting one kind of excellence with another.

3. In the high school the practice of accustoming a student to the practical methods of procedure which an artist usually employs, namely, of sketching out his ideas in tentative form and then gathering material by which gradually to elaborate and perfect them, can be carried much farther than in elementary grades. This line of study in elementary schools has been discussed in detail elsewhere.<sup>1</sup> Throughout school life it is one of the most important factors in developing success in learning to draw.

<sup>1</sup> Sargent and Miller, *How Children Learn to Draw*. (Now in Press.) Boston: Ginn & Co.

The attitude of mind of the child untrained in a workable method of procedure is essentially different from that of another with no more skill of hand but with a knowledge of how to go to work to develop a theme in drawing. The first child, when asked to illustrate a theme in history or geography or literature, will make a crude sketch and then, finding himself at the end of his ability and knowledge in portraying the subject, will be discouraged. The second child regards his initial sketch merely as the first of a series of steps. Having made it, he sees where his knowledge of the forms involved is lacking. If mountains or animals enter into the subject he finds examples of these in nature or in pictures and makes studies until he is familiar with the forms. Every fresh bit of information adds to his ability to deal with the subject, and every new attempt increases that facility which always precedes style.

By the time children enter high school they should have been trained in the gathering and using of reference material for given themes. Without this preparation they do not know that essential of progress, namely, how to go to work independently to learn to draw and design and compose material for an assigned topic. In high school, industry in the search for reference material, and originality in utilizing it, can be carried much farther than in elementary schools, especially in matters of good artistic style, and in adaptation of illustrations and designs to the particular uses for which they are intended. The making of a poster should lead to a search in printers' magazines such as the *Inland Printer*; in artists' magazines, for example, the *International Studio*; in books which describe the methods and results of the finest designers and letterers and present standards of inscriptive design, for example, *Writing, Lettering and Illuminating*, by Edward Johnston.

Drawing and illustration should lead to a study of the best magazine and book illustrations to find out how the mediums used for illustrative work can best express certain pictorial effects.

In connection with working out their own pictorial themes the pupils will probably read with greater appreciation some of the passages, common in books on the lives of artists, which describe their repeated attempts and long-continued study in connection

with certain pictures. They will find repeated in their own work what occurs in the production of so many works of art, namely, the preliminary sketches, the gathering and assimilating of necessary knowledge, the period of discouragement in a greater or less degree at some point, and the final completion.

III. A course of illustrated lectures and readings comprising a survey of art. Fortunately courses of this kind are becoming common in high schools. They give acquaintance with the salient characteristics of architecture, painting, sculpture, and industrial design of the chief historic periods of art. They also bring to the attention of the pupils the more important masterpieces of these periods.

In describing a course of this type given by him in the Ethical Culture School in New York City, Mr. James Hall outlines what might well be the aim and scope of such a course in any high school. He says in part:

The course in art appreciation is open to all high-school pupils. For those taking the regular art course, it is intended to supplement the technical study. It also aims, so far as is possible, to provide for those pupils, who are not sufficiently interested in art practice to elect the regular art courses, but who wish to learn to look at pictures and other works of art intelligently and appreciatively.

This course consists of a series of weekly talks illustrated by stereopticon slides and otherwise, and a certain amount of required reading.

Art, especially painting, is considered as a language for the expression of idea and emotion, and comparisons are drawn between the painter's art and that of the musician and of the writer.

After defining the field of painting, the terms of the painter's language, line, dark and light, and color are discussed, as to their possibilities of expressing visual ideas and of suggesting emotions. . . . After the preliminary consideration comes a general survey of the history of painting. . . . Only the most important painters are studied, and these by a series of comparisons which not only bring out sharply the individual characteristics of their work but also lead to an understanding of the ideals of the period and of the country in which they lived. For example, the painters of the Renaissance show clearly, both in their subjects and in the treatment of their pictures, the newly acquired interest in the classics, the growth of scientific knowledge, and the increasing value set upon individuality which was beginning to permeate the life of the period. Thus the course may throw a side light upon other studies, as history and literature.

But the chief result aimed for is a broadened idea of the meaning of art; a serious desire to look at each picture, so far as possible, from the standpoint of its painter, and some power to respond to the appeal of form and color. With these habits of mind, a pupil at least will realize that he should carefully consider a picture before deciding whether he likes or dislikes it, and through contact with the serious pictorial expression of the great artists his own personality cannot fail to be enriched and his sympathies widened and deepened.

The course ends with two or three talks on architecture, which touch upon some of the principles of architectural composition as shown in examples of the great styles of architecture, Egyptian, Greek, Roman, Gothic, and Renaissance. Only the more obvious distinguishing characteristics of these styles can be considered in a few typical examples.

One or more visits to the Metropolitan Museum are made with the class, in order to point out some of the more important examples of original work by the painters who have been studied.

Regarding a course of this general character Mr. Fred H. Daniels, supervisor of art instruction in the schools of Newton, Massachusetts, speaks, in part, as follows:

In the Newton, Massachusetts, high schools there is offered a fine arts course. Once a week the students taking this course, about fifty in number, assemble in the school hall to hear a lecture on art appreciation. These lectures are given by the supervisor of drawing and are all illustrated by stereopticon slides or by blackboard drawings. During the four-year course the students hear about one hundred and fifty such talks. The students are required to take and record adequate notes in their notebooks, which are marked and corrected each week. The only required notebook illustrations are those which the students may draw.

This course is distinctly aimed at art appreciation and enjoyment. The instructor searches for interesting material to present to the class, believing that high-school students, particularly high-school art students, should enjoy their work, and that their work should be of such a nature that it can be enjoyed by normal boys and girls. Technical terms and the more formal matters of art history are reserved for a fuller maturity in art school or college.

In the high school of the School of Education the course in survey of art is elective. The class meets daily. The study is assigned by means of historical and critical outlines and library references. Each pupil keeps a notebook in which are mounted reproductions of works of art, together with tracings of details of design, etc. In these books are kept also historical outlines, descriptions of some of the masterpieces, records of visits to the museums, and other data of interest. Fig. 2 shows the manner in



FIG. 2



which these books are arranged. In this way the pupils gain a knowledge of the main lines of artistic development throughout the history of the world. They have a suggestion of the problems which artists of different times have endeavored to solve, especially those problems with which modern art is engaged, and they see how these are related to and have grown out of those of the past.

Courses of the three types described in this article meet the needs of the majority of high-school pupils. The courses connected with industrial subjects may readily be based on any line of constructive activity which appears in the school course or in the local industries. The courses in advanced drawing may be highly technical where the number of pupils who have a special interest in art is sufficiently large to justify this policy, or they may be related to other school subjects, even to the point where one of the chief aims will be to give skill in illustrating these subjects.

The courses in the survey of art, or appreciation of art, meet the needs of those who have no technical skill but who wish an introduction to the field of art.

In high schools where art instruction is largely of the traditional studio type and appeals mainly to those with special talents in that direction it is rightly placed on the list of elective studies. However, the place of art in modern social and industrial life and its actual influence upon affairs are now so important that where the work is wisely planned to meet a wide range of interests it would seem that some sort of contact with the subject should be compulsory.

One difficulty in administering art courses so that there is progression in the work arises from the lack of uniformity of attainment in the pupils who enter high schools. Consequently one usually finds in the same course students from every class. In large high schools, classes may be subdivided and graded in this way. In small high schools with only one or, at most, two instructors, grading is facilitated by giving a distinctive character to each course. For example, with the classification of courses here suggested pupils tend to elect early in the school course the work related to industrial activities, and to turn later to the pictorial drawing and to study planned to give a historical survey and to develop artistic appreciation.

## A MODERN CITY'S HIGH-SCHOOL SYSTEM— LOS ANGELES

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In order that there may be a basis for criticism it is necessary, before entering directly on our subject, to recall the modern viewpoint of education. What interpretation do we give today to "the preparation for efficient life" that is the accepted end of this process? We submit the following as an attempt to epitomize the modern ideal:

1. A system must provide those elements of education common to all intelligent democratic peoples. These elements may be divided into three classes: (a) Recognizing its value as the condition for efficiency it must produce a sane health attitude on the part of its beneficiary. (b) It must furnish the tools of mental life with skill in their use. These will include those elements of knowledge generally accepted as fundamental, and such sympathy with others as to make the individual enter into the life of his fellows. Thus, he must have ability to read intelligently what ordinary people read—the newspaper, the magazine, and popular fiction; he must have power so to express his thoughts by tongue and pen that he may be understood; he must grasp the ordinary operations of commercial life; he must become acquainted with the conditions of civil and state government; and he must have such a knowledge of science and history that he will know where to obtain information in case of need. (c) It must provide conditions for the cultivation of a social will—the desire and power to use the acquired tools for others. There must be practice in helpful co-operation in effecting social ends. All education fails that does not impart a measure of self-control in attention, obedience, punctuality, industry, and self-renunciation for a worthy purpose.

2. It must recognize the claims and opportunities of its environment. There must be frank recognition of such moral tendencies as are inimical to the community and provision must be made to combat these. The call of industrial and business enterprises must be heard and the course shaped to answer it.

3. With its efforts to socialize it must recognize that each child is an individual, each is a problem with his idiosyncrasies. Treatment will be both positive and negative. Harmful habits must be eradicated, good ones inculcated. Each pupil is to be placed in the line of his possibilities and he is to be so trained that he will attempt to realize these possibilities.

#### THE ENVIRONMENT AND PROBLEMS OF THE COMMUNITY

Before judgment is passed on the efficiency of a system it is necessary to understand something of the physical and spiritual environment of its community. These can be only very imperfectly sketched in a short paper.

Originally Los Angeles was situated in a semiarid tract half-way between the Sierras and the sea. The hinterland—once water is obtained—is rich in agricultural possibilities. Citrus trees—the orange, lemon, and grape fruit—may produce on good land, under the care of experts, a yearly crop of one thousand dollars an acre. The sugar-beet, bean, wine-grape, melon, walnut, and olive are produced in quantity, while the field for the truck gardener is unlimited. Poultry and bees also add to the wealth of the community. Farming operations on a large scale, however, demand capital and great skill, for the price of land is high.

Manufacturing, except for local needs, is still to be developed.

The population of the city grew from 170,000 in 1900 to its present number of over 500,000. This rapid growth led to two great enterprises that reveal the character of the people. The first is the construction of an aqueduct costing \$25,000,000; the second is the obtaining of a harbor that will cost, as the city's share, another \$10,000,000. The first undertaking was absolutely necessary on account of the lowering of the underground water-level and the constant danger of fire in the conserving woods on the

watershed. Two mountain ranges have been tunneled and 150 miles of desert crossed in the 233 miles of this famous enterprise. With surplus water and 120,000 horse-power of electricity for sale, the venture promises profit. The harbor also promises well and many look forward to its becoming one of the greatest. In the year closing last July there passed through the harbor \$88,000,000 worth of commerce. These two enterprises will stand for all time as monuments to the force and faith of the citizens of Los Angeles.

Who are these people of enterprise that amounts to daring? They are most cosmopolitan. Five years ago one-third were of foreign birth, 50,000 British born. The native Americans are largely from the Middle Western states.

Los Angeles has in its environment some things unique. A large proportion of its population are home-owners. The presence of capital seeking investment has produced large tracts where small payments on long terms allow anyone at all provident to own his home. Frontages of fifty feet are the rule, as the twenty-five-foot lot is not popular. A trip over the residence districts exhibits not only the fine mansions of the wealthy but also miles of modest bungalows with well-kept lawns and beautiful gardens that reveal the home-loving instinct of the people. As the winter seldom brings more than a few degrees of frost and as there is vegetation wherever water is spilled, every man is a gardener. For twelve months of the year gardening is a pleasure. School problems resulting from apartment-house life are consequently less prevalent in this city than in others of its size.

Women are feeling their way into a vital participation in public life. Their clubs are becoming more truly social by the widening of their interests to include active civic and state questions. Under this movement is a strong feminist feeling. Just how deep and how sincere this is, it is difficult to say. Undoubtedly the legislation of the past three years has been strongly influenced thereby. In the schools the history departments are using the new movement with good effect, but it is felt in every department in which girls are under instruction.

A problem that confronts the community is the large number of unhappy marriages that come to light in the divorce courts.

One of the leading papers recently published statistics that revealed the granting of one divorce for every four marriages. In a community one-quarter of which belong to a church strongly averse to divorce, where the tone of the whole city is remarkably moral, there must be classes where the marriage tie is nominal. The strengthening of the home-loving instinct is not the least task that lies before this people.

Los Angeles deserves the name of being the center of "the playground of America." The annual rush of tourists from the North and East in winter is replaced in part by residents from the desert regions in summer. There is thus a constant presentation of attractions. The call of the streets is insistent. If there is no opera or play and the "movie" has no charm, there is the beach or the mountain resort and the wonderful, well-kept roads on which motoring is a delight. A school system has to be alive to face such unfair competition.

As regards business conditions the paradox continues. The presence of numbers of men of means too young to retire from active life who with zest oversee the business to which they are driven by their restless energy makes conditions trying to men of small capital. With a large class of men content to retire from the game there are many of both sexes who augment their stated income by engaging in such occupations as may open. As a result salaries, especially in clerical lines, are low and, notwithstanding the favorable climate which cuts expenses inevitable in a more northern latitude, there is a large class that has a severe struggle to make ends meet.

Manual labor, unfortunately, is yielded to the Mexican, while the Japanese almost monopolize truck gardening. Unlike most of the Pacific Coast cities, this has never been a labor stronghold. For reasons that have been suggested, the labor unions have never succeeded in getting a grasp on the situation. They and the I.W.W. are carrying on active propaganda. With the extremes of fortune living so closely together there is little wonder that there is considerable social unrest.

These conditions have to be taken into consideration in shaping a policy that includes vocational training.

## GENERAL PLAN OF ORGANIZATION OF THE HIGH-SCHOOL SYSTEM

While legally distinct, the same board has charge of both elementary and high schools. The beneficial effect of this coalescence is seen in many ways, most strikingly in the adoption of the intermediate high-school plan. There are seven high schools and ten intermediate high schools. These latter receive pupils for the last two years in the grades and the first in the high school. They are helping to solve the problem of preventing the dropping out that is universally prevalent through non-adjustment to the new conditions under a teacher-for-a-subject school. Each of the seven high schools has its individual bias. Thus of the three largest, each enrolling about two thousand students, it may be said of one that it is distinctly academic and as such is the only one offering Greek; of the second that it is notable for offering technical training both for immediate use and as preparation for advanced technical schools; and of the third that preceding its curriculum is the following pregnant quotation: "to deal simultaneously with material forces and appliances; to cultivate not alone or chiefly the memory or the understanding, the eye to read and the mouth to speak, but the judgment and the executive faculties as well; and to extend the humanities so as to include human interests and human activities as they exist here and now"—an ideal that in equipment and staff this school is attempting to realize.

With this specialization each high school gives courses that lead to college entrance. The beneficial effect is evident in unification both as regards the different schools and in the different courses. A definite standard is demanded in the academic subjects up to which each must live. Courses not leading to matriculation fall into line. The universities keep watch on undergraduates from accredited schools and are not slow in reporting weakness.

## THREE REPRESENTATIVE HIGH SCHOOLS

A few details of the work done in schools not as large as the foregoing will give some idea of the spirit that permeates the system. Of the three chosen the most beautiful is the Hollywood High

School. Hollywood is a wealthy residential district. Most of the students attending this school do not purpose undertaking a university course. The school aims at the study of "home-making disciplines." Thirteen courses are offered of which four are college preparatory. One is offered in each of the following subjects: science, English, commerce, mechanic arts, agriculture, art, home economics, and language and music. The buildings that house this delightful school are worthy of one of the most charming residence districts in southern California. Among things attempted for the boys is the opportunity to make that acquaintance with machinery required by active men of wealth, that skill in making simple repairs that all men need, and sufficient intimacy with craftsmanship to enable them to judge the worth of work done for them. The girls have unsurpassed equipment in domestic science. A suite of five rooms with pantries and kitchen forms a part of the domestic science building. This is used by the Seniors in turn for various purposes. For instance, the mothers of a group of four are invited for lunch. The decorations, arrangement of furniture, setting of table, menu, service, and cooking are appraised and accredited. It is part of the problem to submit a balanced menu at a fixed limit, say twenty-five cents. After the meal the napery is taken to the laundry and washed, ironed, and again inspected for appraisement. The purpose is similar to that in the case of the boys—to secure ability in estimating the worth of work done for them by others and skill to show how it should be done if that should be necessary. Other features of this remarkable institution—the home gardens, the school cafeteria managed by students that provides the midday meal for its fifteen hundred pupils, the physical training department that guards the health of every boy and girl, the simple, tasteful decorations of shop and sewing-room: these might be dwelt on but they are not confined to Hollywood. Enough has been said to indicate the spirit of the work. Strong in its confidence of the place it holds in the affections of the community, not long ago at a school function Hollywood displayed the motto *Noli me tangere*.

When greater Los Angeles was formed, the little town of Gardena situated half-way to the sea, found itself in the city on the "Shoe-

String." Its high school is taking advantage of its position in an agricultural community by specializing in the operations of the agriculturist. Fourteen acres are used for experimental purposes. The school is especially well manned. The heads of the different departments are experts. Their worth is recognized not only by the school authorities but also by various corporations who consult them frequently on problems that require that technical knowledge acquired by graduates of the modern agricultural college. The privilege of living on the farm, looking after the stock and performing other routine operations, is shared by half a dozen of the older boys. Small experimental plots are given to other boys and girls. A few thoroughbred animals have been purchased for the barnyard, the stable, the piggery, and the poultry-run. The courses are shaped to include landscape gardening and elementary forestry. All courses are closely related. Thus domestic science articulates with vegetable- and flower-growing, dairying, and drawing; the chemistry with domestic science and agriculture; and the manual training with farm operations. About four hundred pupils attend this school, its numbers having increased 400 per cent in four years. A point worthy of notice is that all girls wishing to graduate must take domestic science unless especially excepted.

San Pedro is the sea end of the dumb-bell shaped city. Some affirm that it will be the hand that will draw world-commerce to the central body. At present it has a population of six thousand. There are offered at its high school the usual literary, scientific, commercial, and mechanical courses, but there is specialization in marine biology and marine engineering. Fish and other sea economic products, their enemies, wood-destroyers, and other pests form the subject for biological study. The boys may use the shops and school time for building boats. A thirty-foot launch has been constructed under the direction of an experienced boat-builder. It will be used in prosecuting marine studies, while experience is being gained in running a power boat.

#### THE EVENING HIGH AND THE SUMMER HIGH SCHOOLS

A large number of wage-earners seize the opportunity of strengthening themselves in those subjects in which they feel

themselves weak by attending the evening high schools. While credits toward graduation are offered, few avail themselves of the privilege. The equipment of two of the largest schools is used. Twenty-five courses are possible.

The summer school, by doubling the length of each period, allows a half-term's work to be accomplished in six weeks. It was attended this year by over two thousand students. It is open in the morning only.

#### OUTSTANDING FEATURES OF THE SYSTEM

Such features as are peculiar to those acquainted only with the traditional education can be emphasized. The most striking fundamental is the attitude toward school work. There may be truth in the charge against these schools that scholarship is not the final aim. Initiation, leadership, efficiency, and scholarship through spontaneous interests are sought. Considering the large numbers this system reaches for whom the formal school has no place and whose presence colors the whole system, it is to be expected that a cursory oversight would not prejudice one trained under other conditions in favor of the new. There is, however, a buoyancy, an alertness, and a sense of happiness among the schools that are revealed in every department. One instructor gives this explanation: "Students remain till six and return Saturdays to worry over a mistake of one cent in their bookkeeping when they are handling the accounts of the cafeteria, who could with difficulty be interested in an ideal set of books." It is by focusing on living realities that real interest comes. The botany classes raise plants for decoration and for the cafeteria, their instructor having charge of the gardener. The domestic arts girl visits the butcher-shop to see a half-beef cut up, and prowls with her class over the new houses that are being erected near the school. The history students debate on current problems, ammunition for which is sought from their representatives in Congress and legislature. Students of sociology attend public meetings and report to their classmates. The English department, by wide courses of reading and by the use of themes the subject-matter of which is vital, relates school and life.

Probably the most important characteristic is the stress laid on physical culture. Each student receives medical examination on entering. All must take physical training. Without the consent of the school doctor and the recommendation of each teacher a pupil must not take over four solids and two extras a term—a frank obstruction against overloading. Special corrective exercises are given physical defectives. The boys are given indoor gymnasium work, but a large portion of the training, even in winter, is taken out of doors. In the Senior years they may submit tennis or other games. As with the boys, two periods weekly of forty minutes each for physical training are given the girls. Once a week for five months each year a period is given to hygiene. The aim of this course is to enable "each girl to realize her own health possibilities and to formulate intelligently her policy of health control." All girls, whether taking gymnasium work or not, must report at the gymnasium at the time assigned, doff their tight clothes, and don their costumes of bloomers and blouse. Rest rooms with couches are supplied for those not taking part in the exercises. As in all supervised work, credit toward graduation is given for physical training.

Oral English is a notable feature. Grammar and composition are taken with literature under the subject of English for one period (forty minutes) daily. Oral English, however, is offered either two or three times a week as an "extra." Pupils in these classes are trained to think on their feet; they discover and apply the laws affecting description, narration, exposition, and argumentation; they study different forms of speeches—introduction, announcement, welcome, farewell, nomination, etc.; they learn parliamentary law and practice debating. Each school is supplied with a large auditorium for assembly purposes. Students of the expression classes stage two or three plays a year, and positions in the cast are coveted. Each department enforces good oral work with the effect that most of the boys and girls express themselves fluently and forcefully.

Music receives a share of attention that surprises the visitor. Justification is not difficult in a city of music-lovers where grand opera at popular prices brings crowded houses winter after winter.

Excellent music is furnished in places of amusement and in restaurants and cafeterias. Glee clubs, orchestras, bands, the player piano, and the graphophone are used in the large schools. For those who care to study, a choice is offered between chorus work and musical appreciation. The latter provides instruction in the lives of the great composers and interpretation of their music. As "extras" both oral expression and music are open to all students of all courses, providing their programs will admit time for these subjects.

The industrial tone given to the system is a new feature in the new education. A distinction is made between industrial training and trade instruction. A trade school is under advisement for the two years previous to high school for those who are compelled to leave before entering the secondary institution. It will attempt to supplement the English already taught and to impart such knowledge of mathematics and general information as the particular trade undertaken absolutely requires. With these will go instruction in a certain form of skilled work. It is hoped that this school will do for the elementary schools what the present broad course is doing for the high schools, i.e., retain the pupil till he has some foundation for his life-work. The industrial idea, as distinct from the trade idea, is to impart such knowledge of, and skill in, the common performances of related manual or commercial operations as to give the youth a broad view of the field of his choice with some emphasis on the line he selects as his specialty. A somewhat lengthy illustration will make this clear. Take the course for a boy who purposes becoming a machinist, as laid down at the Manual Arts High School. During his first year, leading toward his chosen occupation, he will take woodshop with turning and finishing and mechanical drawing. In his second, forge and foundry will follow with freehand drawing. In his third he will have the choice of pattern-making, carpentry, or machine-shop and architectural drawing. Machine-shop will follow his final year. In addition to this manual work he will have shop mathematics his first year, geometry his second, and he may offer chemistry in place of architectural drawing in his third year and physics in his last. English is obligatory for two years and is optional with book-

keeping the third and with a foreign language the third and fourth. In his third year he must take United States history and civics. Music as an extra may be taken all four years or it may give place to oral English, spelling, vocational guidance, or biology lectures. Physical training is obligatory for all four years. In his final year he must take economics and sociology. All shopwork and drawing receive double periods (eighty minutes a day) as they involve no outside preparation. Two obvious points need scarcely be mentioned: the breadth of instruction and the forcing of cultural subjects if coveted ones are to be obtained.

Continuation classes are held in all the large schools. At Los Angeles High School the continuation class is organized separately and is known as the "junior college." Two years' work beyond the twelfth grade is taught. The experiment is a new one. It will strengthen the hold of the schools on those who have a genuine love for education but who cannot afford the expense of college, and it will give a vision to many who have not realized the value of thorough preparation and who may be led to make sacrifices to seek one of the larger institutions of learning. Full credit is given by the universities for this work.

Thus, through the intermediate school, which introduces the teacher-for-a-subject idea in the seventh and eighth grades and so prevents dropping out under the high-school system of instruction; through insisting, by a vigorous compulsory attendance office, on a correct attitude toward attendance in the elementary grades; through the provision of enticing courses of studies related to real life; through the encouragement of student self-government and the fullest sympathy with students' interests; through laying emphasis on work done every day rather than testing by semi-annual examinations for promotion; and through the continuation classes after graduation, students are kept in school and in touch with educational interests till they are led to seek that measure of training for which they are fitted. Of the twofold service in saving boys and girls for college and in saving others from college, who can say which is the more admirable?

Before passing to the statistical part of this sketch a few words must be said of the spirit of the students. Each school conscious

of its excellences is not over-modest in singing its praises. As each school activity unfolds with the progress of the calendar year, grand rallies are held, each more important than the last, where superlatives are exhausted by the speakers and throats by the student body. It would be a strange youth who would not be caught by some of these activities: Rugby, soccer, basket-ball, handball, tennis, hockey, track, water polo, wrestling, fencing, and archery, with dramatics, debating, and folk-dancing suggest some of the lighter interests. At the time of the inter-school football contests, enthusiasm runs at its highest. Over five thousand spectators witnessed the closing games last fall. That school spirit may be used for other purposes is evidenced by the plant at Polytechnic. The laborious work of fencing the school grounds was cheerfully done by the boys, while the large art building was designed by the students in the architectural classes. Many of the repairs in the different schools are looked after by the high-school students. When a play is staged, most of the costumes are made in the domestic science rooms, the special scenery in the shops and the art departments. At the great pageant held this June one thousand costumes used by one school were made by its boys and girls. The statement is frequently made, "Think what the school is doing for you. What can you do in return?"

#### HOLDING POWER OF THE SYSTEM

The following statistics will show the measure of success of the system and may serve as a basis of comparison with that in other cities. The authorities constantly estimate on 75 per cent of all eighth-grade pupils entering high school. Frequently the percentage is higher than this. In 1914, 3,702 graduated from the grammar schools, of whom about 2,000 finished in June. There were enrolled in the Freshman year in September 3,534, of whom 2,371 were in the first half.

In order to obtain a rough idea of the power of the system to retain pupils till their course is completed it may be stated that, in 1910, 2,782 students were enrolled in the ninth year. The number enrolled in the twelfth year in 1914 was 1,380, while 1,257 graduated. The figures for the previous year give nearly the

same story: enrolled ninth year (1909), 2,197; enrolled twelfth year (1913), 1,187; graduates, 1,088.

For the sake of comparison with other communities the enrollment and population are herewith given:

Year	Enrolment Ninth Year	Population
1908.....	2,236	302,600
1910.....	2,782	319,200
1913.....	3,543	425,000

In the year 1914-15, 72,000 attended the elementary schools, and 20,000 were given high-school instruction, 6,500 of whom attended the evening school.

The press in its editorial columns is strongly behind the schools, and the ubiquitous "Constant Reader," while complaining of every conceivable service, seldom offers adverse criticism of the schools. The Chamber of Commerce last year, at the invitation of the School Board, recommended an expert from Chicago. He received \$2,500 for sixteen weeks' service, during which time he placed the question of mercantile efficiency before the commercial teachers.

Nor will this esteem decrease. The courses are swinging more and more toward vocational work. It is probable that a new office will be created—that of vocational supervisor. It will be the duty of this officer to keep in touch with the industrial and commercial world on the one hand and the schools on the other. He will advise as to the courses of study, oversee the practice in the schools, keep an eye on the graduates, and note openings for those coming out. As there are over twenty vocational and prevocational courses in the system the position is a natural outgrowth, not a graft. It means that students are to be encouraged to find themselves as soon as possible. There will be less wasted time and less fruitless and purposeless effort. The staffs are being trained to be on the alert to guide, suggest, and arouse with this end in view.

It may be frankly admitted that the system is costly, if we may place the material against the spiritual. For the year 1914 the

state granted \$83,381, the county \$1,246,556 for high-school purposes. The cost per pupil for average daily attendance, including all expenses except permanent improvements, was \$128.98.

#### SOCIOLOGICAL BASIS

One cannot but be struck by the great social influence that lies in this institution, in its attempt to solve the problems of modern American life. The home is receiving far-reaching benefit in girls with cultivated tastes, with a sane health outlook, and with a scientific attitude toward household affairs—girls who recognize that housekeeping presents problems that are worthy of the best they can give, but who can be financially independent if necessary. Rich and poor are meeting in the unrestricted democracy of youth. It reminds us of the traditions that have come from the Dark Ages when the passion for education caught the young men of Europe who flocked to the seats of learning at Bologna, Paris, Padua, and Oxford, men of all ranks and tongues. In these high schools a body of trained workers is being raised whose members have had an introduction to the essentials of literature, science, and sociology. These will one day be leaders in the ranks of labor. On the other hand are youths who will be leaders of another sort. They are being trained in the only way possible for an appreciation of the contribution of the workers to the world-fabric. In the shops, over the forge, at the bench, in the school, in the millinery room, and on the campus both types are today performing the same tasks on an equal footing.

#### THE END

So these schools are doing a great work. In a very real sense are they the public schools, the "people's university." No longer is the motor-minded youth crowded out of his chance for a glimpse of the worlds that man has discovered. No longer need he feel inferiority beside his differently endowed brother—the ideo-minded youth. Here he finds a recognition of the value of his talent and an opportunity to develop it. If in taking the opportunity he must submit to studies he does not like, he cheerfully submits. So does the system attempt to meet all classes and all kinds in preparing them for efficient life.

## USES OF THE TERM "SECONDARY" IN AMERICAN EDUCATION

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Every student of educational affairs is forced at some time to ponder over the words "elementary" and "secondary" as applied to educational fields and institutions. At first approach the meaning of the terms seems clear. The elementary school is the first school entered by each recruit of the educational army, and the secondary school is the next, to be entered when the work of the first has been completed. Elementary and secondary education, accordingly, should consist of the materials taught and the methods employed in each of these respective institutions.

But a slightly broader acquaintance with the problems and literature of his profession convinces the amateur that the matter is not so simple as it seemed. He soon becomes aware of a real problem. In fact, he discovers that it is not only the novice who is troubled; even the "doctors" disagree. He reads President Hadley's confession that one term which has puzzled him greatly is "secondary education"; or Monroe's statement that "the views concerning secondary education, as to its purposes, scope, curriculum, methods, or organization, are of the most diverse character, even among those who are specialists in this very field." And when he passes from these warnings to a perusal of the papers which have been written on the issue he is fairly bewildered by the diversity of meaning which he finds.

This paper attempts to bring together some of the more common American uses of the terms "secondary school" and "secondary education," both implicit and explicit, and partially to explain, through a historical account, their conflicting meanings. The following types of usage have been encountered.

1. *Chronological*.—The secondary school is the second school entered by the public-school child (omitting the kindergarten), and

secondary education is the education afforded by this school. This meaning is probably the oldest of all, historically considered, and still lies implicitly behind much public pedagogical discussion.

2. *Institutional*.—This meaning is much like the foregoing, but appears to lack the element of temporal succession. It assumes vaguely that the secondary school is identical with the public high school, or its equivalent in aim and content, and identifies secondary education with the work of these institutions. This interpretation is perhaps the most widely used of all at the present time.

3. *Curricular*.—Many attempts have been made to distinguish secondary from elementary and higher education on the basis of subject-matter. Some writers<sup>1</sup> maintain that elementary education is designed to furnish the tools or "conventionalities" of learning, while secondary and higher education use these tools to impart culture and professional preparation. The "tools" include such attainments as reading, writing, spelling, and the handling of numbers. Secondary and higher education in their turn may be distinguished by the fact that the former aims principally at culture and the latter at training for professional efficiency.<sup>2</sup> With the cultural activities of the high school is now usually associated training for the simpler vocations and for citizenship, but the advocates of this expansion do not clearly indicate that they regard all of these matters as within the domain of secondary education.

President Butler, of Columbia University, offers a somewhat different type of curricular definition. He describes the secondary studies, first, as being comprehensive and reflective, secondly, as becoming increasingly difficult from year to year, and, thirdly, as putting emphasis upon their own inner connections and deeper implications.<sup>3</sup>

Definitions such as these, which are based upon general features of subject-matter, have been attacked upon the ground that many subjects which by their terms should be secondary in character are

<sup>1</sup> J. F. Brown, *The American High School*, pp. 41-42.

<sup>2</sup> P. H. Hanus, "Aims of the Modern High School," *School Review*, V, 387-400, 433-44.

<sup>3</sup> N. M. Butler, "The Function of the Secondary School," *Educational Review*, XVI, 15-27.

actually begun in the elementary school.<sup>1</sup> But to this criticism the reply is made that there is no reason why the line delimiting secondary from elementary education should precisely coincide with that which separates the secondary from the elementary school.<sup>2</sup> In this reply we find evidence of a distinct differentiation between "secondary education" and the work of the secondary school.

4. *Methodological*.—Another basis of distinction between elementary and secondary education has been that of method.<sup>3</sup> This is closely connected with the psychological type of definition next to be discussed. The adolescent mind, being, as has been supposed, essentially different from that of the younger child, makes different methods of instruction necessary. Emphasis is put upon less rote and upon more logical memorizing, upon appeals to the intellect and especially to the adolescent emotions, and upon granting to the pupil increased independence of thought and action. The same objections have been urged against this as against the psychological definition.

5. *Psychological*.—Perhaps the distinction which is most rapidly gaining ground today is that which regards elementary as pre-adolescent and secondary as adolescent education. Emphasis is accordingly put upon the physical and especially the mental differences characterizing these stages of development. This conception of secondary education forms one of the principal arguments in favor of the downward expansion of the high school to absorb the seventh and eighth grades.

Recent studies of the onset of pubescence in school children have raised difficulties in the way of this conception, particularly when it is made to include the secondary school. It has been found that the time of onset differs greatly with different individuals.<sup>4</sup> While some pupils may experience the change at the age of ten or eleven,

<sup>1</sup> E. W. Coy, "What Is a Secondary School?" *Proceedings of the National Education Association*, 1896, pp. 613-18.

<sup>2</sup> A. T. Hadley, "Meaning and Purpose of Secondary Education," *School Review*, X, p. 729.

<sup>3</sup> F. M. McMurry, "Relation between Elementary and High Schools," *Education*, XXVI, 253-59.

<sup>4</sup> A. Inglis, "A Fundamental Problem in the Reorganization of the High School," *School Review*, XXIII, 307-18.

others may not reach it until the age of seventeen, or even later. Among a reasonable proportion of the children the range of variation covers a period of at least three years. It is consequently contended that it is impossible to fix the time of secondary-school entrance strictly at the point of onset of adolescence. However, it is doubtful whether anyone ever expected that such would be the case.

A further objection to defining secondary education in terms of adolescence is founded upon the teachings of a recent school of adolescent psychologists, to the effect that the change from childhood to adolescence is not saltatory, but gradual, and that the differences between late childhood and early adolescence are by no means so profound as school men have been taught to believe.

A second and older type of psychological definition regarded secondary education as primarily disciplinary in character. This function of the high school was stressed in the report of the Committee of Ten, and formed the underlying theory upon which most of that body's recommendations were based. This conception has suffered in consequence of the recent unfavorable airing which the whole principle of formal discipline has received.

6. *Social*.—The typical European distinction regards elementary education as the necessary training of the proletariat, and secondary education as a luxury for the better classes. Such a distinction appears in current American literature chiefly as an object of reproach, but the time has been, and at no distant date, when the American secondary school was looked upon strictly as a college-preparatory institution. Vestiges of this doctrine still exist outside the teaching profession, and are not entirely unknown within it.

What is fundamentally a social distinction appears from a peculiar angle in the following quotations:

Secondary education . . . includes all those studies which are regarded by the public as too far advanced to be part of that compulsory education which it strives to furnish all its citizens, and which are at the same time not sufficiently specialized in their purpose or aim to be considered part of the technical preparation of different groups of citizens for their several callings in life. . . . Speaking roughly, primary education aims to secure the necessary level of general intelligence; technical education aims to secure the necessary level

of practical intelligence; secondary education aims at something in excess of these necessary minima. . . . Primary education is what the public considers it necessary to require of all; secondary education is that for which it provides the facilities, but does not consider absolutely requisite.<sup>1</sup>

7. *Age of pupil.*—Certain advocates of the adolescent interpretation of secondary education endeavor to render their definition more concrete by stating it in terms of chronological age. Thus Butler regards it as the education appropriate to children from twelve or thirteen to sixteen or seventeen years of age. A committee of the National Education Association has considered the propriety of defining it as the education which is appropriate from twelve to eighteen. Evidence of a tendency to raise the upper limit to twenty is seen in some quarters.

The definitions which have been stated comprise those most frequently encountered in the educational journals and discussions of today. Obviously these definitions overlap. No one tells the whole story. The social and psychological distinctions involve those of subject-matter, method, and age. The institutional and the chronological definitions may become identical. But underlying these various meanings appear two conceptions which seem clearly antithetical. One of these conceptions regards the upper and lower limits of secondary education as coincident with those of the secondary school; the other regards secondary education and the secondary school as two distinct quantities. From the latter point of view secondary education may become a function of elementary or higher institutions, and the secondary school may offer elementary or collegiate subject-matter. The first concept seems to be implicit in most of the discussions of secondary-school problems, while the second appears to be gaining ground in those writings which deal directly with the meaning of these terms. An attempt to bring the two once more together appears in the movement toward the upward and downward expansion of the high school.

The writer has been interested to ascertain how and when these different meanings came to be. When was the term "secondary" first used in American educational discussions? What did it mean

<sup>1</sup> Hadley, *op. cit.*

at that time? When and why have other meanings been attached? To answer these questions the following sources of information have been canvassed, covering the period from 1826 to 1900.

*Old American Journal of Education; 1826-30.*  
*American Annals of Education; 1831-37.*  
*Common School Journal; 1830-52.*  
*American Institute of Instruction, Lectures and Reports; 1831-1900.*  
*Barnard's American Journal of Education; 1855-80.*  
Massachusetts School Reports (Horace Mann); 1837-48.  
Indiana, Department of Public Instruction, Reports; 1852-53, 1863-66, 1869-90.  
Illinois, Department of Public Instruction, Reports; 1857-90.  
Michigan, Department of Public Instruction, Reports; 1839, 1855-70.  
United States Commissioner of Education, Reports; 1870-1900.  
National Teachers' Association, Reports and Addresses; 1857-70.  
National Education Association, Reports and Addresses; 1871-1900.  
*Educational Review; 1890-1900.*  
*School Review; 1893-1900.*  
*Report of the Committee of Ten; 1894.*

The index of each volume of these journals and reports was consulted for the presence of the term "secondary." When the term was found, the article or address was turned to and scanned, to verify the index and to ascertain the meaning given. For the period preceding 1860, every article or address whose title suggested the possible presence of the term was also scanned.

Certain defects of these methods and materials must be acknowledged. The study does not go back of the year 1826; it does not cover any large portion of the educational literature appearing after that date; and it is possible that the term was used in the literature which was surveyed before it was given a place in the index. The last defect was at least partially eliminated by the scanning of other articles than those indexed as containing the term. In fact, the earliest appearances of the word were detected in this way. No reply can be made to the remaining criticisms, except to say that the literature chosen is representative of its time, and that if the word was used at all before it found its way into these materials such use was certainly sporadic.

The account which follows seeks to describe the principal stages through which the term has passed in the course of its American evolution.

The earliest appearance of the term noted was in the *American Journal of Education* for September, 1828. Here it is found in an account of the French school system as reorganized in 1802: "The principal features of this system . . . . were these. It was divided into primary schools, secondary schools, lycées and special schools. . . . In the secondary schools were taught the Latin and French languages, the first elements of history, geography, and mathematics; and any school, though under the management of a private person, teaching these branches of education, came under this head." The primary and secondary school were closely related in this system, both being under communal direction, while the *lycées* were schools apart. Admission from these secondary schools to the state-supported *lycées* was by examination only. Other references to the term occasionally appear in the *Journal* and in the *Annals*, down to 1837, but all those noted were concerned with the French system. The term seems clearly to have been of French origin.

But in the first adaptation of the word for American uses a peculiar alteration occurs. About 1838, Henry Barnard, as commissioner of common schools of the state of Connecticut, gave an address in the principal cities and villages of that state, in which he urged the adoption of a system of schools "to include Primary, Secondary, and High Schools, with Intermediate schools or departments." The secondary schools in this plan were to receive pupils at eight years of age and keep them till twelve, and "carry them forward in those branches of instruction which lie at the foundation of all useful attainments in knowledge, and are indispensable to the proper exercise and development of all the faculties of the mind and to the formation of good intellectual tastes and habits of application." This school should give "as thorough a knowledge of reading, arithmetic, penmanship, drawing, geography, history, and the uses of the language in composition and speech as is ever given in the public schools, as ordinarily conducted, to children at the age of sixteen." This address was repeated as an article in *Barnard's Journal* in 1856, and again in 1862.

A similar plan was urged in the first report of the Department of Public Instruction of the state of Indiana (1852). Superintendent Larabee says: "In the larger places there should be three

grades [of schools], primary, secondary, and high schools." The curriculum of the secondary school is described as "reading, writing, geography, grammar, and arithmetic, with such other collateral branches as may be deemed judicious."

When compared with the French plan, which seems to have been its progenitor, this scheme displays marked resemblances and differences. It seems to have been designed as a finishing school for popular education. Such was the distinct function of the French communal school. But no place is found in its curriculum for Latin, as in the French plan. The principal difference would appear to be in the ages of the pupils for whom each was intended, the American school not advancing so far as the French.

In *Barnard's American Year Book* for 1870 we find evidence that his reiterated pleading had borne fruit. In a section on secondary schools, of a "Digest of Rules and Regulations of Public Schools in Cities," appear the following descriptions of secondary schools then in operation:

Cleveland, Ohio, 1866: Between the primary and intermediate; four classes in mental arithmetic, writing and drawing, object lessons, reading, elementary sounds and phonic spelling, geography and map-drawing, written arithmetic, physical exercises.

Dubuque, Iowa, 1867: Between the primary and grammar; four grades; spelling, defining, mental arithmetic, written arithmetic, reading, writing, geography, object lessons.

Fort Wayne, Ind., 1867: Between the primary and intermediate; writing, reading, spelling, arithmetic, geography, object lessons, language, singing, and gymnastics twice a day being the studies.

Springfield, Ill., 1866: Between the primary and intermediate; reading, spelling, arithmetic, writing, drawing, definitions, elementary sounds, lessons on things, physical exercises.

Similar schools are described about this time in Philadelphia and in Washington, D.C. Occasional references to their existence in smaller places appear in the reports of the Indiana state department.

This appears to mark the culmination of the first line of development which the word "secondary" experienced in American education. That its use then was radically different from contemporary usage needs no demonstration. It was applied to what

we should now designate as the pre-grammar grades, and was succeeded even then by the grammar and high schools. It was distinctly a people's school; and it was the second school in the system, whence doubtless its title.

We now turn to the tracing of a second line of development in the meaning of the term, which seems to lead continuously to the usage of the present day. Here again the movement harks back to French sources. In 1806 Napoleon so modified the French system as to include the *lycées* in the class of secondary schools. He thereby extended upward the limits of secondary education. As a result the purposes of this group of schools gradually changed, and before the middle of the century we find evidence that secondary education had come to assume the status of a class privilege. "Distinct from elementary instruction . . . secondary instruction includes the study of ancient languages, of literature, of mathematical and physical sciences, which ought to prepare for the learned professions, for great intellectual accomplishments, and for the principal occupations of society. It is intended particularly for those whom the sacrifices of their families or the liberality of state or community put in position to devote themselves to study not only through their childhood, but during those years of youth which in other walks of life are devoted to remunerative labor."<sup>1</sup> While not restricted to the better social classes as the sources of its clientele, secondary education was clearly regarded as necessary for admission to those classes.

This change in usage is reflected in American educational discussions. Once more Henry Barnard appears to be responsible for the first large movement. In 1857 *Barnard's American Journal of Education* contains an account of secondary education in Sardinia. In this account we read: "The secondary schools are divided into the classical and the technical. In the former the students are taught the ancient and modern languages and literatures, and the elements of philosophy and science, as a preparation for the studies of the university. In the latter the elementary course of instruction is continued and the students prepared for the exercise of the different professions for which the university makes no special

<sup>1</sup> Quoted by Farrington from Villemain, *Rapport au roi*, 1843.

provision." The division thus described corresponds in the main to the "bifurcation" of the secondary schools of France in 1852.

From this date until its discontinuance in 1870, every volume of *Barnard's Journal* contains an account of secondary education in one or more European countries. In 1870 forty-one such reviews appeared. Selecting at random, we find the systems of the following countries to be among those described: France, Bavaria, Belgium, Saxony, Prussia, Austria, Greece, Denmark, Holland, Luxemburg, Canada, and Zurich. The significant thing about these descriptions is that the schools selected as being of secondary grade are mainly the classical and scientific, which prepared principally for university entrance, and which received pupils up to eighteen years of age. The word "secondary" was taking on something of its modern connotation.

The first important application of the term in this sense to American schools to come under the writer's notice was in 1871, when the United States commissioner of education, John Eaton, included in his annual report a section devoted to "Institutions for Secondary Instruction." The report says: "The progress toward completeness exhibited in this report enables us to present a partial illustration of the great subdivisions of instruction so often recognized among educators; first, Superior; second, Secondary; third, Elementary." Statistics are given revealing "the status of 638 academies and high schools . . . institutions of secondary education." This section appears without interruption in all subsequent reports.

While the term had now begun to assume something of its contemporary character, it also took on something of its modern vagueness. In 1872 the Commissioner wrote: "The line of demarkation between elementary and secondary and between secondary and superior instruction is not very distinct, if drawn at all." In 1876 he says: "Not only are these general divisions of elementary, secondary, and superior far from definition, but . . . the programs of study in each are without exact definition." In 1882 he continues in the same strain: "The expression secondary instruction . . . is not used in my report to designate institutions of exact and uniform grade. It has, however, proved a convenient

term of classification, serving as a means of bringing together and in some degree systematizing a mass of information that could not well be referred to any other head." However, while the word was thus used with considerable elasticity so far as its fundamental meaning was concerned, it is significant that most, and finally all, of the schools included under this rubric were academies, public high schools, and the preparatory departments of higher institutions.

The next advance toward the standardization of the term was due to the work of the Committee of Ten, from 1892 to 1894. While before this time the Commissioner of Education had become fairly clear as to the type of institution to be designated as secondary, these institutions themselves showed no clear conception of the nature of their duty. Their curricula were extremely varied. This fault the Committee of Ten set itself to rectify. The effect of its labors was to substitute for the short and miscellaneous courses previously offered a standard program of fewer courses, each covering four or five hours a week for about a half-year. It led to considerable uniformity in secondary curricula throughout the country. This committee also seems to have initiated the definition of secondary education in psychological terms, in this case in terms of formal discipline.

Thus far four distinct stages in the development of the modern conception of the term have been noted: first, the expansion upward of the French secondary system; secondly, the use of this expanded meaning by Henry Barnard in his accounts of secondary education abroad; thirdly, the application by Commissioner Eaton of the term in this sense to American education; fourthly, the partial standardization of the aims and content of secondary schools by the Committee of Ten. There remains a fifth, the rise of a clear-cut distinction between secondary education and the work of the secondary school.

Again, this distinction appears to be of French origin. In 1893, a commission appointed by the French Minister of Public Instruction visited the Columbian Exposition at Chicago, and while in America inspected the national system of education. The report of this commission was published in 1896. Quotations from the

portion which dealt with secondary education, and which was written by Gabriel Compayré, are published in the report of the United States Commissioner of Education for 1895-96:

American secondary education comprises two parts and is divided into two periods. On the one hand are the public or private schools which . . . . give a course of instruction corresponding nearly to that of our classes of grammar, . . . . or of the first year of our modern secondary instruction; and on the other hand are the colleges . . . . which are nearly the equivalent of the French *lycées*. . . . The Americans give, therefore, without knowing it, secondary education in their colleges, while they refer these institutions to higher or professional instruction. . . . In America, secondary instruction is made up of at least two portions, the high schools and the colleges. And in some states, in Massachusetts notably, certain secondary studies, that of Latin, for example, have been introduced into the grammar schools . . . so that a little secondary instruction is found in every grade of institution without being distinctly organized in any one.

The high schools themselves are described a little later as "half secondary and half primary institutions."

These statements were the first distinct recognition noted in America of the fact that secondary education should be conceived in terms broader than and different from the content of the accepted secondary school. But the distinction having once been made, it was turned quickly to account. If secondary education could no longer be defined in terms of an institution, just what invariable meaning could be attached to it? Discussion began, and culminated in the vast variety of definitions of which we have already furnished illustrations.

In conclusion, it is interesting to observe that today we seem about to close the cycle. Starting with the conception that secondary education was identical in nature and limits with the work of a so-called secondary school, we reached the point of rather generally differentiating between them. Secondary education became larger in its circumference than the secondary school. But that we are now in the way of once more identifying these concepts by expanding the boundaries of the secondary institution to embrace our new conception of secondary education is manifested by many of the arguments advanced for the establishment of junior colleges and high schools.

## A JUNIOR HIGH SCHOOL<sup>1</sup>

HERBERT S. WEET

Superintendent of Schools, Rochester, New York

Two years ago the city of Rochester found, among its other school building problems, a serious congestion in one particular section. This section is more thickly populated than is any other section of equal area in the city. It is fairly cosmopolitan. Practically every nationality usually found in our American cities is represented there. There also are represented the unfortunate home conditions only too often found in most large communities, as well as the sound and wholesome home conditions of the great middle class of this commonwealth.

Seven elementary schools were concerned in this particular problem. With but one exception each of these schools consisted of a kindergarten and eight grades. One school had the kindergarten and six grades only. Practically every building was overcrowded, and additional room had to be provided. Plans had already been drawn for additions to two buildings only, when the Board of Education took under consideration the plan of a central building in which might be gathered the pupils of the seventh and eighth grades of the surrounding schools, thereby giving the needed room and leaving these schools easily accessible for the younger pupils of the first six grades. The cost of these two additions alone would exceed one hundred thousand dollars, and it was estimated that the cost of all the additions required would fully equal, if not exceed, the cost of a central building. Six of these seven schools were, roughly speaking, in the circumference of a circle, while the seventh was approximately at the center of that circle. No one of these surrounding schools was scarcely more than one-half mile from the central grammar-school building, thus making the

<sup>1</sup> Paper read before the Convocation of the University of the State of New York at Albany, October 22, 1915.

maximum distance to the central building not excessive for seventh- and eighth-grade pupils.

There was also another building problem which seemed to favor this central building plan. The East High School, which serves this particular community, was also overcrowded. If, then, the seventh- and eighth-grade pupils could continue their ninth-year or first-year high-school work in this central building, some measure of relief would be afforded to the East High School. These conditions, therefore, pointed to the wisdom of the six-three-three plan of organization for this community.

On the educational side there seemed to be equally strong reasons for adopting this plan. Rochester, like most cities, has essentially the single-teacher plan of organization in the upper grades. Semi-annual promotions prevail; the usual common-school subjects, including drawing, music, and sewing for girls, are taught by the same teacher; while a weekly two-hour manual-training lesson for boys and a corresponding lesson in cooking for girls are taught by special teachers. We were, however, conscious of the fact that in every seventh- and eighth-grade group four type needs were found, no one of which was being adequately met, nor by the very nature of the organization could be adequately met under the conditions that prevailed. We had, first of all, in each grade group certain boys and girls who were going on to high school, there to take the general or college-preparatory courses. For these we felt the urgent need of an opportunity to begin the study of a foreign language, for example, while they were still in the upper grades. In the second place, we had in each grade group certain pupils whose sole ambition was to get the best possible preparation for the business office. Some of these planned to go on into the commercial courses of the high school, while still others through choice or necessity were to withdraw from school upon the completion of the eighth grade. Here again was a type need that was not being met. Then again in each grade group were girls who would be called to work in the home or in the trades as soon as the grammar-grade work was completed. For these much more attention to the household arts seemed desirable. Lastly, there were certain boys, and the number of them in this particular community was large, who

would go to the machine-shop, the print-shop, and other trade lines as soon as elementary-school days were over. For these more work in the industrial arts was important. It was thought, therefore, that if a sufficient number of these pupils could be gathered in one central building, each type need could be met in a way consistent with economy and adequate instruction.

I sometimes wonder whether we as school men are alive to the importance of these needs. On a screen in the Child Welfare Exhibit of the San Diego Exposition I saw these astounding figures. I cannot vouch for their accuracy. I give them exactly as I copied them from that screen:

"Of all the children in the United States between the ages of fourteen and sixteen only one-eighth of them are in school."

"Every year in the United States, two million children fourteen years of age or under leave school and go to work without knowing where that work is likely to lead."

"Of all children in the United States who leave school at the age of fourteen or under, less than one-half of them have gone beyond the fifth grade."

These figures call for most serious reflection on our common type of school organization in the upper grades of the elementary school.

But as regards Rochester and this particular problem, the central grammar school referred to was a comparatively new building, having been first occupied in 1908. It was furthermore the largest grammar school in the city. It had a large assembly hall, a gymnasium, shower-baths and a swimming-pool, a library, and other facilities which seemed to adapt it admirably for junior high-school purposes. It was lacking, however, in adequate shop-room. It was decided, therefore, to add to the building the necessary shops and use this plant for the first junior high school. A new elementary-school building was erected for the kindergarten and first six grades of this grammar school.

The lines of work in this junior high school have already been indicated. They are the academic, the commercial, the household arts, and the industrial arts. At the present time no differentiation in courses is made until the beginning of Grade VII A, or the latter half of Grade VII. This allows one half-year in which to study

the needs, ability, and interests of each pupil. No pupil is assigned to any one of these courses until the parents have been consulted, the entire record of the pupil in the elementary school studied, and the judgment of the present teacher secured. Even in Grade VIIA the differentiation lies in subject-content rather than in subjects. All pupils, for example, continue arithmetic, the application, however, in each course, being adapted to the nature of the work in that course. The boy in the industrial arts course finds practical application of his arithmetic along trade lines, while the pupil in the commercial course finds a special application along business lines. This is illustrative of the general principle of differentiation throughout the work of Grade VIIA, so far as the book subjects are concerned. At this time also the pupils of the household arts and industrial arts courses begin to spend one-third of their time in shop or manual work and the remaining two-thirds in book work.

There is a twofold reason for this conservative differentiation during the first year of work in this junior high school. In the first place, as we felt the need of one half-year in which to canvass all the conditions of any pupils before assigning any differentiated work, so we felt the need of another half-year in which to verify the assignment made. In the second place, the work involved in preparing detailed courses of study, even for the differentiations made, was so great that it would have been very unwise at the beginning to attempt more pronounced differentiations.

At the beginning of the eighth grade or second year of junior high-school work a sharper differentiation takes place. Here the study of foreign language and general mathematics, including arithmetic, concrete geometry, and elementary principles in algebra, is begun by the pupils in the academic course. All the pupils here expect to go on into the general and college-preparatory courses of the upper high school. The foreign language, Latin, for example, and the English grammar and composition are taught by the same teacher, while the literature of the English work is taught by the teacher of history and civics. Elementary science, drawing, music, penmanship, and physical education, together with three hours each week of household arts for girls and shopwork for boys, make up the remaining schedule for the pupils of the academic course.

This shopwork for the boys of the academic course is taken in the regular shops and is given by the regular teacher of shopwork. Thus the manual training is linked with practical problems and is removed from the general and disciplinary field in which it has been held all too long. The same principle applies to the girls of this course in the household arts work.

No specialized work of secondary grade is attempted in the other courses until the ninth year, or regular first-year high-school period, is reached. In the industrial arts course, the following lines of shopwork are given: machine, sheet metal, gas engine, printing, plumbing, cabinet-making, and wood-finishing. From the time the boy begins his work in this course at the beginning of the seventh A grade until he reaches the first-year regular high-school period, his time is spent, not in any one shop, but in all the shops, giving thereby a certain number of weeks to each. If at the end of this time, therefore, he must go directly into the trades, he will have had some insight into the field of each, and some hand training, consistent with his maturity, that will be of service to him. On the other hand, if he is to continue his school work along the trade lines he can with reasonable intelligence select his specialized trade.

Those who are familiar with junior high schools will recognize in this a very conservative differentiation. In some junior high schools, for example, pupils begin specialized commercial subjects such as shorthand and bookkeeping as soon as they enter the school. This means at the close of the sixth grade. In like manner the regular first-year high-school algebra course is begun at the seventh A period and completed at the close of the eighth. Thus one and one-half years are taken for a regular high-school study that would have been completed in one year had the study been deferred until the usual high-school period. This principle prevails throughout.

These two types of differentiation are in strong contrast. The one assumes that all seventh- and eighth-grade pupils are able to do regular high-school work, and it puts the major emphasis upon economy of time. The other assumes that the great body of seventh- and eighth-grade pupils are not ready for regular high-

school work, and it puts the major emphasis, not upon economy of time or the opportunity to take a greater range of subjects, but rather upon a more thorough grounding in the subjects already given. Both are experimental and both are worthy of careful study. So far as Rochester is concerned we are convinced that the differentiations made are meeting the type needs of the seventh- and eighth-grade pupils much more adequately than they have hitherto been met. When under this differentiation we find a group of pupils able to go more rapidly than the great body of pupils, we shall provide for them through special organization. We shall, moreover, not close the door of the upper high school to the pupil of the industrial arts course who at the close of the eighth grade may desire to take the college-preparatory courses of the upper high school. He will not have had the foreign language and the general mathematics of the eighth year, but even so he will be quite as well prepared as are the eighth-grade pupils of our other schools who are not getting the advantages of these differentiated courses.

The school day begins at 8:30 and closes at 4:15, with one and one-fourth hours for noon intermission. This makes the school day six and one-half hours in length. This day is divided into four periods of one hour and thirty minutes each for actual instruction. During this time the entire school work of the pupil for the day is to be done. This gives a school day and a school period of sufficient length to provide for both the preparation and the recitation of lessons. We are assuming that supervised study or intelligent training in the preparation of a lesson is quite as definitely an obligation of the school and is fraught with consequences quite as important to the child as is the recitation. This assumption is based upon two facts. The first is that our pupils show the need of such training; the second is that the vast differences in home conditions result in a most undesirable diversity when outside preparation in the home is depended upon. We have the belief, furthermore, that the growing boy and girl, particularly of pre-adolescent and early adolescent age, have a right to the opportunity of doing the day's work during the day.

The question naturally arises, Is not this day too long for both pupil and teacher? The answer is, We do not know, but we

propose to find out. It all depends upon so many factors, time for the discussion of which is not possible within the brief limits of this paper. The alternating of the subjects which require intensive mental effort with those subjects which do not require this effort, and the few minutes of relaxation even during the former, when windows are thrown open and simple physical exercises or games indulged in, are two important factors. The fact that in charge of this work are experienced grade teachers who know so well how to take advantage of such opportunities will suggest much to the minds of those familiar with the problem.

The selection of teachers for such a school is at the same time the most important and the most difficult problem presented. Assuming that teaching experience is indispensable, the choice lies between the experienced high-school teachers with college training and the experienced grade teachers, usually without such training. The former will be strong in subject knowledge but not so strong in their knowledge of seventh- and eighth-grade boys and girls. Moreover, they will be inclined to regard work in the junior high school as in a less advanced position, even though salary conditions are the same. The latter will be less strong in subject knowledge but stronger in their experienced knowledge of upper grade children. They will furthermore regard work in the junior high school as an advancement and will be conscious of the need of supplementary training. This attitude of mind speaks volumes in favor of the experienced grade teachers.

Once it was decided to select experienced grade teachers, the problem of intelligent selection presented itself. Accordingly, one year before the junior high school was to open, a series of Saturday morning institutes was begun. Classes were organized in Latin, German, English, elementary science, and mathematics. These had to do with applicants for teaching positions in the academic course. Specially trained teachers were available for the commercial, household and industrial arts courses, though Saturday morning institutes were organized and carried on through the year in these courses also. The major emphasis in these latter had to do with courses of study.

To these courses were admitted every experienced grade teacher in the system who met the minimum requirements and who cared to apply. Every applicant for a position as teacher of mathematics in the junior high school must have had, for example, the full mathematics courses of the upper high school. To continue with this subject of mathematics as illustrative of the principle which prevailed in these institutes, three definite things were accomplished. In the first place, an opportunity was given for making in outline a course of study in general mathematics for the eighth-grade or second-year junior high-school pupils of the academic course. It was exceedingly important that this should be done and that it should be done with great care, since this course was to prepare the pupil for the specialized mathematics courses of the upper high school. Furthermore, no textbook had been written to meet this particular condition. Had we confined ourselves to the arithmetic or taken the straight high-school course in algebra the task would have been simple. The institute was in charge of the head of mathematics in the high school to which the pupils of this particular junior high school would later go. He knew the high-school needs and was naturally in a position to indicate the best line of preparation. In the institute class, on the other hand, were the experienced grade teachers with their knowledge of the capacity and limitations of upper-grade pupils. These seemed to be favorable conditions for working out courses of study. The working out of such courses, therefore, was one important thing to be done in these institutes. In the second place, these institutes gave to the grade teachers an opportunity for subject-matter review in algebra and geometry. And lastly the work of the teachers in these institutes constituted one important factor in the ultimate selection of teachers. What has been said of this course in general mathematics was equally true in principle of each of the other courses.

At the close of the year each one of these teachers met our Board of Examiners and received a rating. The factors which entered into this rating were: length of experience, quality of experience, professional training, personality, and Saturday morning institute work. Selection was then made in the order of ratings

given, and each teacher selected was given an initial salary of one hundred dollars in excess of what she would have received had she remained in the grades. Later salary advances will be determined solely on merit and not according to any fixed schedule.

In the light of what has been said, the general organization of the school can be presented with comparative brevity. There are no departmental heads as we know them in the usual high-school organization. At the head of the school stands the principal, a strong, experienced grammar-school man. Associated with him and giving his whole time to the instructional side is a director of junior high-school academic work. He also is an experienced grammar-school principal of exceptional ability in his particular field. His task is to relate and co-ordinate the academic work of the entire school, regardless of the department in which it is given. This makes for unity and it greatly facilitates the transfer of pupils from one course to another when there is a demonstrated need. One man is in general charge of the shops, one woman has the corresponding place in the household arts work, and the director of commercial education for the entire system is taking immediate charge of the commercial department. The high-school departmental heads who carried through the institute work of last year are consulting engineers. Their interest has been pronounced and their contributions important. In fact in the main they are coming to the school for a regular period each day, there to teach a class of eighth-grade pupils, while the regular teacher and often the director of academic work are present also to offer their contributions and assistance. Such is the desire of these high-school men to know at first hand the powers and limitations of the grade pupil. This ought to contribute much to the solution of another commonly recognized problem, that of securing a closer working relation between the upper grades and the high schools.

This is an exceedingly simple type of organization and it will doubtless impress some as being too simple. On the other hand, those who are familiar with the usual departmental work of the upper high school, which only too often becomes compartmental, will find at least a partial defense for the plan outlined above. As later junior high schools are organized in Rochester, this director

of academic work will extend his field as the unifying force over all, and such additional subdirectors will be assigned as experience proves desirable.

In conclusion, I feel the need of reminding all that this school is less than six weeks old. We simply stand at the beginning of a long and difficult task. Doubtless many changes will have to be made, but they can be made, for we are not irrevocably committed to any feature. What has been done thus far simply represents the best that we have known how to do under our own local conditions.

## EDUCATIONAL NEWS AND EDITORIAL COMMENT

### THE CHICAGO DINNER AT DETROIT

A dinner of the graduates and students of the University of Chicago will be held in Detroit at the Hotel Tuller on the evening of Tuesday, February 22. All who have been connected with the University are cordially invited to attend. The President of the University will be present and will speak. It will greatly assist those who have the dinner in charge if all who intend to come will write as early as possible to the Dean of the College of Education, University of Chicago.

### ANNUAL MEETING OF THE COLLEGE TEACHERS OF EDUCATION

The regular annual meeting of the College Teachers of Education will be held in connection with the meeting of the Department of Superintendence at Detroit. There will be three sessions, as indicated in the following program, and two informal luncheons. The place of meeting will be announced in the final program of the Department of Superintendence. The hours of meeting and the subjects of discussion are given below:

*President, PROFESSOR CHARLES H. JUDD*

*Secretary, DEAN GUY M. WILSON*

#### FIRST SESSION, Monday, February 21, 10:00 A.M.

The relation of college and university departments of education to other agencies which have to do with the promotion of the scientific study of education. Discussions by Messrs. L. P. Ayres, F. W. Ballou, S. A. Courtis, Abraham Flexner, W. A. Jessup, G. D. Strayer, and others.

Informal luncheon of members, 1:00-2:30 P.M.

#### SECOND SESSION, Monday, February 21, 2:30 P.M.

The relation of the department of education to other departments within the college or university. Discussions by Messrs. W. C. Bagley, W. G. Chambers, E. P. Cubberley, Alexander Inglis, E. A. Miller, and others.

#### THIRD SESSION, Tuesday, February 22, 9:00 A.M.

Investigation at Harvard University of the Department of Economics by the Department of Education. Mr. W. F. Dearborn.

Practice Teaching, Mr. A. R. Mead, Dr. Romiett Stevens.

Business session with reports of committees.

Informal luncheon of members, 12:30 P.M.

## EDUCATIONAL LEGISLATION IN 1915

Three southern states, Alabama, South Carolina, and Texas, in 1915 passed compulsory education laws for children under fourteen and fifteen years of age. Alabama attempted further to increase the efficiency of her schools by prohibiting employment of teachers under seventeen, by giving a state bonus to a county which votes a one-, two-, or three-mill tax for public schools, by providing election in rotation of school-board members, giving more authority to the county superintendents, requiring all private schools to make reports to the state department, and holding teachers' institutes, together with a respectable appropriation for the construction of rural schoolhouses. In California the state legislature prohibits home study for all children under fifteen years of age, and insists that instruction must be given, in all grades of grammar schools during the entire course, in manners and morals, and in the nature and effects of alcohol. Further legislation in California authorizes post-graduate elementary-school courses in business, together with civics and history. This is an attempt to modify the junior high-school curriculum.

In Connecticut the state board of education is authorized to establish continuation schools, part-time schools for trades and vocations. In Florida the ill effects of alcoholic beverages and narcotics are required to be taught to pupils between six and twelve years old. County boards are authorized to make application for home economics and domestic science in rural schools. In Washington a commission of six unsalaried members is granted power to make an educational survey of the state and report on April 1, 1916, upon definite lines for organization and the work of educational institutions and the school system. In Illinois all school children are to be given courses in physical training. Hawaii places responsibility for school attendance upon parents under the penalty of fine, while the police visit the schools once a week to secure the names of absentees, and are empowered to pick up children on the streets during school hours. Rhode Island empowers the state board of education to establish and maintain traveling libraries. In Connecticut also the wider use of school buildings for public or educational purposes or political discussions is provided at the option of the board of education.

The total amount of school legislation for this year has not been unusually large, but even a hasty survey of it indicates the general marks of progress which the schools, as a whole, are making. Industrial education, vocational instruction, moral guidance, better articulation of school parts, compulsory education, scientific examination of the value

of school plants, better preparation of teachers—these, and many other, tendencies are establishing themselves yearly more firmly in our school practice by legislative requirement.

State school legislation often lags behind practices already adopted by the better schools; but legislation much more generally precedes actual practice in by far the greatest number of schools. The history of school reforms indicates that a few leading institutions attempt innovations. To these experimenting schools, at Yverdun, at Boston Latin, at Franklin's Academy, at Gary, school men make pilgrimages, either literal or figurative, observe the practices being tried out, and return to their schools to carry out the experiments themselves. Attention of legislators is gradually attracted to the improvements thus promulgated, discussion arises in legislative halls, and ultimately laws are enacted. More prosperous schools the state over observe both the letter and the spirit of the law; village schools come lagging after. Many years are often required before there is a general adoption of the new practices throughout the state.

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#### NIGHT CLASSES IN LANE TECHNICAL HIGH SCHOOL

Six thousand students are enrolled in the night classes of Lane Technical, of Chicago, as contrasted with 2,300 pupils in the day school. Of the six thousand, approximately four thousand are in attendance four evenings in the week, lack of funds closing the doors the other three evenings. Germans, French, Spaniards, Scandinavians, Poles—most of them young people with a sprinkling of middle-aged, 70 per cent of the total being men—the night students of one school, compose a small army of ambitious people preparing for useful citizenship.

For this student body an exceedingly rich and varied course of study is provided. Running a press, or learning French; studying medicine, or bricklaying; learning to read and write English, or learning to care for cattle; journalism, bookkeeping—there is hardly a subject that has not an organized class in the evening work of this one school. One hundred and thirty teachers, under the direction of Superintendent Bogan, a large percentage of them day teachers in Lane, conduct the work.

There is school organization also. Mr. Henry M. Hyde of the *Chicago Tribune* says:

If there is in any college a more enterprising and energetic organization of students, one has never heard of it. A mere list of their undertakings would make an ordinary schoolboy's head ache.

The students run a daily and a weekly newspaper, they print an elaborate and handsome yearbook, they conduct a dramatic club, which presents plays and vaudeville entertainments; they have an orchestra, a mandolin and glee club, a rifle club; their athletic teams win more than their fair share of championships, and they keep close track of all their alumni.

Listen to this further list of volunteer student organizations: Radio Club, Debating Club, Camera Club, Spanish Club, Classical Club, Schiller Verein, Civic Industrial Club, and brass band.

But the students are not yet satisfied. They think the big school plant should be used all the time. A delegation of the night-school pupils recently visited the board of education and asked to have the school opened regularly as a community center. The board Committee on School Management has not yet reached a decision on the request.

But when it is granted, the young people have their future program all worked out. All they propose to do is to establish and maintain educational moving pictures, concerts by their own choral society and orchestra, free lectures, a vocational bureau open for consultation by all workmen, classes in citizenship, a big organization of parents, and a civic forum, at which all the problems of the North Side may be freely discussed.

Chicago people might find an evening's visit to the Lane School interesting. But one fears it is too easy to reach and too near home to be worth the attention of the professional critic.

P.S.—If one gets hungry during a tour of the building, there is a cafeteria in the school where all kinds of food can be had at very low prices.

#### SIGNIFICANCE OF THE NIGHT-SCHOOL MOVEMENT

Any friend of education reads with regret that the main reason Lane Technical closes its doors on Friday and Saturday evenings is lack of funds. A second reason lies in the fact that day teachers largely comprise the night force; they must have some rest. Compensation for night work, comparatively small, necessitates the employment of teachers occupied by day.

Both of these difficulties will in time be met. They must be overcome because in the education of these night students, Lane, and any other school, is performing a function equal if not superior to the function of a day school. Educational opportunities furnished free should be given to those who need them most, and, above all, to those who are eager to take full advantage of them.

The *School Review* intends to cast no slur upon the industry and ambition of the 2,300 pupils in the day school of Lane. The excellent standard of work in that institution has long been one of the boasts of the public schools of Chicago. Nevertheless we feel safe in saying that

the student who, in addition to a hard day's work at his trade, is willing to attend a laborious evening at his school is more worthy of public assistance than are thousands of day high-school pupils who perform their school duties with indifference and ennui. Emerson said that the boy who dares to wear a rusty cap and an outgrown coat in order to keep in school is worthy of honor. The majority of night-school students belong to this aristocracy, of faded hats and shabby coats. Let school authorities make retrenchment elsewhere. Evening and continuation schools, still in their infancy, need organization and classification; but they are one of the most significant innovations of recent years.

#### MILITARY DRILL IN HIGH SCHOOLS

A recent article by Henry M. Hyde in the *Chicago Tribune* is evidence that the problem of military drill in secondary schools is a very real one. If the ballot conducted by the *Tribune* is representative, the citizens of Chicago at least are overwhelmingly in favor of some sort of military discipline. A post-card vote shows that 86.5 per cent of those responding indorse the idea, the figures being 2,420 for and 325 against. Some of the replies are illuminating:

A Scotchman declares that the setting-up exercises and military drill should be made compulsory "for the good of the boy's health and character. More than anything else our young men need to learn habits of discipline and self-control. My two sons, now in the high schools, desire to be enrolled."

A widow writes: "I have one son serving as lieutenant in the regiment at the Illinois State University, another son at Lane Technical High School who is anxious to get the benefit of the military drill, and a third in the eighth grade who feels the same way about it."

"I strongly favor the plan for the sake of the boys," writes a South Side father. "I have three sons and it is a source of regret to me that my means will not permit me to send them all to a first-class military school."

A man who is thoroughly familiar with the present system of physical education in the public schools points out that it could be easily adapted to the suggested changes. The present course would be improved by the addition of the West Point setting-up exercises, to the great advantage of the carriage and figures of the boys, while the military drill would teach discipline, habits of obedience and command, and teach them all to act and work together in a common cause.

Of the objections two are typical:

An avowed Socialist denounces the *Tribune* for "doing the dirty work of capitalism" and "attempting to poison the innocent young minds of little children" by "instilling principles of barbarism and butchery."

One West Side father who sends in his vote against the military drill advances a somewhat novel objection. "I do not favor," he writes, "because I am afraid it would take too much of the boys' time and attention. They would be more interested in the military drill than in their studies, which are the more important."

The "West Side father" has a certain shrewd common-sense on his side, but the statement of the Socialist is an instance of the prevailing ignorance of what military drill in high schools can and cannot do.

In the first place, it must be remembered that military discipline for boys of high-school age is no very new or startling idea. A glance at the December number of *Harper's Magazine* will show that of the preparatory schools for boys listed in the advertising department, one-fourth are military in character. In a number of high schools setting-up exercises, marching, and even something like the manual of arms are used in physical training. It is not evident that graduates of preparatory schools are imbued with the "principles of barbarism and butchery" to any greater degree than the rest of the community.

In the second place, military drill in high schools would no more teach the art of war than singing in the high-school chorus would educate a prima donna. Even in state universities where the instruction is given under government supervision there is little pretense at professional military training. The Universities of Wisconsin and Illinois are typical. The university regiments in both institutions are ranked very high on the government list; instruction is given by an army officer; yet the University of Wisconsin regiment has never fired a shot, seldom even blank cartridges, and in both universities company and regimental evolutions, the manual of arms, setting-up exercises, the care of a rifle, and elementary instruction in mounting guard are about all that is attempted. So far as actual trench warfare goes, both regiments would have to begin from the ground up. Even our militia has very little instruction under actual field conditions.

What, then, is the advantage in having any military drill at all? The greatest result that the work in secondary schools would have is the inculcation of obedience. The civilian assents to the proposition that obedience is the *sine qua non* which makes discipline possible, but he does not realize that only incessant drill in simple evolutions every brings it about. The student may forget all about company evolutions in two or three years, but some persistent work, however elementary, in obeying orders will lay the foundations for habits of obedience he will never forget. The necessity of obedience in civil life needs no comment; surely it is neither very warlike nor very barbarous.

A second advantage is that military drill is for high-school students a rather interesting disguise for ordinary physical training—a kind of sugar-coated pill. It is the opinion of Dr. Lucien Howe, of the University of Buffalo, in a pamphlet on the subject, that military drill will materially help in the correction of certain physical ailments alarmingly prevalent among students in high school and college. At eighteen years of age, he says, "on the average about 18 or 20 per cent of the boys . . . have more or less spinal curvature . . . due in many cases to hereditary tendencies . . . also due to the neglect of teachers to make children sit straight and stand straight." At eighteen 16 or 18 per cent of the students attending school are near-sighted, a condition due to the same neglect. Typical of the results of ignorance is the fact that in a recent examination of students at the University of Pennsylvania, only 97 students out of 1,256 examined were found to be physically perfect. One help toward correcting such evils is, in the opinion of Dr. Howe, the installation of a simple system of military drill in high schools, on the model of the Boy Scouts and (for the girls) of the Campfire Girls. As the boys mature and realize the responsibilities of citizenship, "the training of young men at college can be developed by the manual of arms, marching, camping and camp cooking, pontoon building, wireless plants, aviation, etc., or corresponding practice on shipboard for those who live near the coast."

"Such out-of-door, manly recreation as this," he concludes, "unlike the present athletic training, tends to a healthy physical development for the many, instead of the excessive and specialized development of the few. . . ." His argument applies both to college and high schools.

No discussion of military drill for high schools will get anywhere which assumes that the simple exercises possible will turn out a generation of finished warriors, seeking whom they may devour. Absurd as this assumption is, it is tacitly the base of many arguments on the question. It must be remembered that such drill as could be given would be very simple, almost non-military, valuable immediately as physical exercise, and valuable to the nation only so far as it begins the inculcation of habits of obedience.

#### LETTER-WRITING BY BOY SCOUTS

The directors of the Boy Scouts have inaugurated a plan by which American boys may exchange letters with boys in practically all countries. Each month *Boys' Life*, the official Scout magazine, publishes the

names of lads in all lands who desire to receive such letters. Arrangements have been made with scout organizations in Europe, Asia, Africa, and South America, so that a letter written by any American boy, whether he is a Scout or not, will be delivered to one who in all likelihood will send back as interesting a letter as he receives. The only requirement is that the letter to be forwarded shall be inclosed in an unsealed envelope bearing proper postage, and sent in another envelope to the editor of *Boys' Life*, 200 Fifth Avenue, New York. After the exchange of the first letters, boys may correspond direct.

Teachers of English should welcome this opportunity to furnish their pupils with a vital motive for serious and sustained correspondence. It is one way of breaking the dreary formality of prescribed weekly themes. Why not accept as a substitute a letter written to a South African lad telling something about the writer's school, his city, about farming, mechanics, sports, amusements, and the like? Here is abundant motive for purposeful composition, abundant occasion for careful revision under the comments of an instructor. Certain letters written in English by young Chinese lads to American schoolboys under a similar plan of exchange, both for interesting content and for quaint but correct English, have proved that the Boy Scout scheme is at once interesting and efficacious.

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ASSOCIATION OF MODERN FOREIGN LANGUAGE TEACHERS OF THE  
CENTRAL WEST AND SOUTH

In response to a circular letter signed by sixteen prominent teachers of German and Romance, there took place at Cleveland on December 29, during the meeting of the Modern Language Association of America, a meeting at which was formed the Association of Modern Foreign Language Teachers of the Central West and South. Professor A. G. Canfield of Michigan was elected president, Professor C. H. Handschin of Miami was made secretary-treasurer, and an Executive Council was chosen consisting of the president, secretary-treasurer, and the following: A. Coleman, Chicago; Josephine Doniat, Carl Schurz High School, Chicago; A. R. Hohlfeld, Wisconsin; Herbert L. Marshall, Central High School, St. Louis. The movement will be well launched at the first regular meeting, which will probably be held in Chicago in the spring. All who are interested in this movement are invited to communicate with C. H. Handschin, Miami University, Oxford, Ohio.

## A MODERN LANGUAGE JOURNAL

Representatives of the Modern Language Associations of New England, of the Middle States and Maryland, of New York State, and the Central West and South met at Cleveland on December 30 to confer about the establishment of a national journal devoted to the interests of teachers of modern foreign languages in the secondary schools and colleges of America. The need for such an organ had long been manifest, and the great success of the *Classical Journal* and the *English Journal* has indicated that it would be welcomed by the teaching profession.

As a result of this conference it was decided to begin the publication of the *Modern Language Journal* at as early a date as may be—probably in the coming autumn. The journal will have as places of publication New York and Chicago. Professor Bagster-Collins of Columbia University was named managing editor; C. A. Busse of Hunter College and A. Coleman of Chicago were elected business managers. Associate editors chosen thus far are Professors Deihl of the Wisconsin University High School, Nitze of Chicago, and Vos of Indiana. Other associate editors and the consulting editors remain to be chosen.

The journal will be addressed primarily to those interested in questions pertaining to the teaching of German and the Romance languages. It will appear eight times a year, will have from 32 to 48 pages, and will contain articles on pedagogic and cultural topics.

## SCHOOL CHARACTER CHART

Mr. Milton Fairchild, of Washington, D.C., chairman of the Executive Committee of the National Institution for Rural Instruction of Children and Youth, presents to school men a school character chart, now in the process of third revision.

WASHINGTON, D.C., December 17, 1915

## SCHOOL CHARACTER CHART

It is believed that schools have produced about as good results as are possible from a curriculum devoted almost exclusively to intellectual education. If more attention to character education should be given, and a better basis in character thus gotten for intellectual development, an improvement in the product of American education could be secured which would be much appreciated by parents and the general public, and a benefit to the nation.

The following statement of the character which should be the result of education has been compiled from advice received from many thoughtful

people in various walks of life, and is respectfully submitted for further study and criticism by those interested. Modern life is complicated beyond the possibility of understanding save through collaboration by many individuals who combine their experiences and observations into a broad basis for conclusions. On the level of many minds there is some degree of certitude regarding the wisdom of human experience.

Character is divided into six phases: (1) intellectual, (2) working, (3) personal, (4) social, (5) emotional, (6) physical. An estimate in detail of a pupil's character can be made by grading each item thus: "earnest, 7; trifling, 3"; or 5 and 5, or 2 and 8, according to observation. The totals under each division can be made up, and the general total. A detailed knowledge of the strength and weakness in character of any pupil can be attained, and used as a basis for planning his or her character education. The effectiveness of the general character education given in a school can be estimated by a study of the character development of the pupils in the older classes.

#### INTELLECTUAL CHARACTER, needed for wise thinking.

1. Earnest, not trifling.
2. Sincere and open-minded, not diverted by personal interests.
3. Discerning, not superficial.
4. Alert, not indolent.
5. Accurate, not indefinite.
6. Useful, not merely interesting.
7. Inventive and constructive, not lacking initiative.
8. Rational and judicious, not over-emotional, hysterical, nor melancholy.

#### WORKING CHARACTER, needed for doing useful work.

1. Purposeful, not led merely by likes and dislikes.
2. Teachable, not stubborn.
3. Attentive, not heedless.
4. Ambitious, not self-satisfied.
5. Persistent, not vacillating.
6. Energetic, not lazy and dilatory.
7. Thorough, not careless.
8. Decisive, not procrastinating.
9. Progressive, not opposed to change.
10. Thrifty, not wasteful.
11. Artistic, not slovenly.
12. Adaptable, not slow to fit into new surroundings.
13. Developed executive ability, not haphazard.

#### PERSONAL CHARACTER, need for doing right by one's self.

1. Thoughtful, not merely impulsive.
2. Influenced by high ideals, not content with low standards.
3. Conscientious, not lawless.
4. Independent, not suggestible.

5. Self-controlled, not weak.
6. Refined, not coarse.
7. Self-respecting, not dissipated.

**SOCIAL CHARACTER**, needed for doing right by others.

1. Genuine, not affected.
2. Honest, not thieving nor disposed to cheat.
3. Truthful, not given to lying and deceiving.
4. Honorable, not sneaking.
5. Just, not unfair.
6. Harmonious, not wrangling.
7. Forgiving, not vindictive.
8. Disposed to trust others, not suspicious.
9. Sociable, not exclusive nor snobbish.
10. Loyal, not treacherous.
11. Pure, not lewd.
12. Courteous, not rude.
13. Tactful, not brusque nor priggish.
14. Generous, not stingy nor jealous.
15. Public-spirited and patriotic, not selfish.
16. Reverent, not impudent nor flippant.

**EMOTIONAL CHARACTER**, needed for the joy of living.

1. Courageous, not timid.
2. Capable of true love, not cold-hearted.
3. Kindly, not cruel nor hateful.
4. Sympathetic, not self-centered.
5. Congenial, not repulsive.
6. Responsive to the beautiful, not indifferent.
7. Alive to truth, not uninterested.
8. Devoted to righteousness, not inclined to evil.
9. Humble, not conceited.
10. Patient, not irritable.
11. Tolerant and with a sense of humor, not angry over differences of opinion.
12. Hopeful, not pessimistic.

**PHYSICAL CHARACTER**, needed as a basis for human life.

1. Well-developed body, not poorly nourished.
2. High resistance to disease, not susceptible.
3. Vital, not sluggish.
4. Ready muscular control, not bungling.
5. Endurance, not quickly tired.
6. Strength, without a disability.
7. Grace of figure and carriage, not frumpy.

MILTON FAIRCHILD, *Chairman Executive Committee*

NATIONAL INSTITUTION FOR MORAL INSTRUCTION  
OF CHILDREN AND YOUTH

## COMMUNICATIONS

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### AN ENGLISH VIEW OF SCIENCE TEACHING

In an article entitled "Science for All," published in the English magazine *Nature*, it is made evident that prevailing methods of science teaching are being questioned in England as in the United States. In this article the author states that from an examination of science courses and classroom procedure one may conclude that "school science as at present taught, and as defined by examination syllabi, seems to proceed on the assumption that every pupil is to become a skilful experimenter, or an original investigator, in the realms of Nature. Courses of laboratory work designed with this intention may not unfairly be compared with the test-tubing of former times, which aimed at making every boy an analytical chemist." Later in the same article appears the following sentence: "Modern life requires that the elements of scientific method and knowledge should form part of every educational course." Then still later is the sentence: "That is the standard—abiding interest—by which successful teaching may be judged; and we are disposed to think that the descriptive and qualitative school science of a generation or two ago was better adapted to promote such continued attention than is the quantitative work in the narrow fields mapped out for instruction today."

Each of these three quotations might easily serve as the text for one of three common types of discussion of science teaching. There are those who occupy their time in a negative way by showing the inadequacy in modern life of the too prevalent formal methods of science teaching. Then there are those who are trying constructively to introduce the elements of "scientific method and knowledge" into the common activities of those who study science, and the third group is trying to change the content of science courses so that the topics and materials to be used shall appeal to students and develop "abiding interest, by which successful teaching may be judged." It must be clear that these three points of view are harmonious, and the first, when recognized, should not be dwelt upon too long so that the constructive work involved in the second and third may be developed. There are too many science teachers who, spiritually speaking, dwell too constantly upon their "conviction of sin" and give too little attention to their "repentance and reformation."

There is a pretty large number of science teachers throughout the United States who have decided that changes in point of view and in practice are needed and who have set about to develop those changes. Three prominent changes are already evident. One relates to the types of subject-matter used in the old-time courses in science, to the end that the scientific method of thinking may be developed by use of common significant science materials. Another prominent change looks toward the construction of a unified series of high-school science courses, beginning with general topics which find their coherence in the inherent relations of the topics, and which call upon any of the sciences as they may contribute to a study of these topics; then there follow the courses in differentiated sciences, each utilizing and building upon preceding courses. A third conspicuous change may be either cause or corollary of the other two, namely, a markedly different conception by teachers of the real purpose of science teaching and of the necessity of a careful study of general and specific procedure related to science teaching.

It is probably true that science teaching was never better done in high schools than at present, notwithstanding the fact that we see so many lamentably poor practices. But our ideals of what science may do, our newer interpretations of the place of science in the training of the young in a democracy which has about one-half of the secondary pupils of the world and a democracy which uses science in everything it does, impels us to demand reformations which accord with newer ideals. These reformations are now under way and are moving as rapidly as safe experiment seems to justify.

OTIS W. CALDWELL

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## BOOK REVIEWS

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*The Riverside History of the United States.* WILLIAM E. DODD, Editor.  
I, *Beginnings of the American People.* By CARL L. BECKER. Pp. 346.  
II, *Union and Democracy.* By ALLEN JOHNSON. Pp. 279.  
III, *Expansion and Conflict.* By WILLIAM E. DODD. Pp. 329.  
IV, *The New Nation.* By FREDERICK L. POXSON. Pp. 342.  
New York: Houghton Mifflin Co. \$1.25 each.

It is now a quarter of a century since the publication of the three-volume work, *Epochs of American History*, edited by Professor A. B. Hart. A detailed comparison between that work and the present set of four volumes, edited by Professor Dodd, would reveal the progress that historical investigation has made in this field during the intervening years. It is needless to say that the *Riverside History*, written by historians of the younger group, who are men of acknowledged scholarship, embodies the results of this progress.

The volumes, of convenient octavo size, are intended for advanced college classes and for general reading by business and professional men; and they are admirably suited for both purposes. Many teachers, however, would wish to see marginal notes or sectional headings in the chapters. They might also wish for a different kind of bibliography at the ends of chapters; the brief lists of books given are not especially serviceable either to teachers, to whom the books are well known, or to students, who desire more specific references. Moreover, teachers would be pleased, and students would be benefited, if in certain places the outline of fundamentals in the story of events stood out more plainly, even at the expense of style. For example, in the chapter on the making of the Constitution (Vol. II, chap. ii), the date of the Alexandria meeting is stated as 1784 (instead of 1785) but it is not distinctly stated that the Annapolis convention met in 1786; that nine ratifications were secured in 1788; or that the Constitution went into effect in 1789. Students will be interested in the progress of the story, but their study of this and other topics will not leave a clear impression of such essentials. A similar looseness in the statement of dates is seen in the next chapter in connection with the admission of states (Vol. II, p. 55).

Professor Becker's volume stands out among the four in respect to style as Woodrow Wilson's does in the Epochs Series. Everywhere, however, there is vigor of expression, and the interest is sustained.

The most noticeable single feature of the set is the large number of maps and graphs illustrating both the political and the economic phases of our history. There are 31, 25, and 11 maps and charts in Vols. II, III, and IV

respectively. Several of these embody data that have not hitherto been displayed in this form. There are maps showing results of elections, agricultural products, internal improvements, railroads, population, public domain, distribution of industries, etc. The emphasis upon economic history and the concreteness of its presentation mark the new era upon which the writing of our history has entered.

This set will be serviceable, not only as a college text, but as a work of reference for public and high-school libraries.

ALBERT H. SANFORD

STATE NORMAL SCHOOL  
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*An Elementary French Grammar.* By E. W. OLMSTED. New York: Henry Holt & Co., 1915. Pp. xii+338.

The forty-three lessons contained in this book present an unusually complete résumé of the leading facts of French grammar needed by beginners. The rules are for the most part clearly and crisply set forth, as a reader may easily verify by turning to the treatment of adjective position in Lesson XVII, of interrogative pronouns in XXIX, of *ce v. il* in XXVIII, of prepositions in XXXVI, of the subjunctive in XXXIX. Furthermore, teachers will be pleased to find that the author succeeds quite unobtrusively in acquainting the beginner with numerous niceties of grammar and idiom usually untouched in such a treatise, and, since most students do no formal grammar after their introductory book, this fact has its importance.

The book is provided with much phonetic apparatus,<sup>1</sup> with grammatical questionnaires for use in direct-method classes, and, in about half the lessons, with really interesting exercise material bearing on France and French life. In the chapter on pronunciation are to be noted the presence of the usual comparisons between French and English sounds, with no more than the usual success, and the absence of a simple description of the formation of French sounds from the standpoint of practical phonetics. To get this the teacher would almost sacrifice the useful and thorough treatment of the individual letters on pp. 5-10. The questionnaires furnish an excellent basis for review, but will the direct-method enthusiast put into the hands of his pupils a textbook written in English?

<sup>1</sup> The author's adoption of Passy's pronunciation as given in the *International Dictionary* leads him in his vocabulary to transcribe an open *e* in the penultimate of words like *espérer*, *répeler*, and in the initial of *sérieux*, *féroce*, *Pléiade*; to transcribe *fosse* with an open *o*, and *atone* with a close *o*; to pronounce *Montaigne* like *montagne* (cf. Stapfer, quoted in Nyrop's *Manuel phonétique*, p. 154), and *mars* with the same vowel as *âme*. There are a few misprints in the transcriptions: *aurai* with open *e* (p. 15), omission of nasal symbol on *montrer* (p. 243) and on *distinct* (p. 258), close vowel in *je* (p. 268). The transcription for *matière* is missing.

It would probably have been better from the classroom standpoint if Professor Olmsted had divided a good many of the lessons into two. In Lesson V, for example, the student is to learn seven uses of the article, the names of the seasons, and the days of the week, and the present indicative negative and negative interrogative of *être*; in XII and XIII he is confronted by the formidable rules for gender and by long lists of masculines and feminines; and XVI has a vocabulary of twenty-nine words, a list of sixteen adjectives in two forms, five rules for adjective agreement, the conditional form of five verbs, and a rule for tense-usage. This is obviously too much material to set before the student at once, and there is nothing in the nature of the subjects which makes it necessary to crowd them into a single chapter.

The teacher of beginning French classes who anxiously examines each new grammar, hoping to find his many difficulties lightened, will be grateful to Professor Olmsted for providing him with an interesting and unusually complete textbook. He may find other strictures to add to the above—for example, that the volume contains no clear summary of the principles of tense-usage—but he will welcome the book as a serious effort by a competent teacher to set forth the leading facts of French grammar in accord with the trend of recent pedagogy.

A. COLEMAN

UNIVERSITY OF CHICAGO

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*Chemical Calculations.* By R. HARMAN ASHLEY. New York: D. Van Nostrand Co., 1915. Pp. v+384. 12mo, cloth. \$2.50.

The subject-matter of this book is divided into ten chapters whose headings are as follows: "Ratios," "Approximate Numbers," "Interpolation," "Heat," "Specific Gravity," "Gas Calculations," "Calculation of Atomic Weights and Formulas," "Gavimetric Analysis," "Volumetric Analysis," and "Use of Specific Gravity Tables and Acid Calculations."

Besides giving a goodly number of problems and their answers under each of the foregoing topics, the author has endeavored to present in the initial pages of each chapter the principles underlying the solution of the problems that follow. Concrete illustrations, showing how these principles are to be applied, are also given in this connection. Much space is devoted to the subjects of "ratios" and "factors." The author regards the time-honored way of writing proportions as unfortunate, and attempts to wean the student from its use. Again, considerable effort is spent in developing general formulas which may later be used as stencils, as it were, for the solution of problems of a certain type. So, for instance, in connection with Dalton's law of partial pressures about four pages are devoted to the development of such a general formula which is to be used in the solution of problems that follow. Any teacher of experience knows that this is not the way to teach the subject to a student, for, in the first place, this long-drawn-out general development, by means of algebraic

symbols to which are attached cumbersome subscripts and index marks, is uninviting and quite unnecessarily confusing; and then after this formula, the stencil, has finally been made, the solution of the problems becomes routine in character. Indeed, the formula may be used in solving the problems without really understanding its complete significance at all.

It is a mistake to think that chemical arithmetic is different from any other kind of arithmetic. The student ought to solve his chemical problems by means of the same principles of arithmetic that were taught him to handle problems that arise in business or anywhere else. In his work in the chemical laboratory, he ought to be encouraged to use the arithmetic which he learned in the lower schools. The old-fashioned way of writing proportions is a very excellent one to use in calculating chemical problems, but if the student has been taught to solve his problems by the so-called analysis method, let him use that method. If he has had good training in arithmetic, he will readily understand what is meant by the "factors" which are used in some of the books containing numerical chemical data. The matter of "ratios" will offer nothing new or difficult to him. On the other hand, if his arithmetical training has been inadequate, this defect must first be remedied, and it can not very well be done by inculcating pet ways of solving chemical problems. It is safe to say that no chemist of note has learned to solve chemical problems in such a way.

The solution of chemical problems is best taught at the laboratory desk when such problems arise, making use of the arithmetical methods with which the pupil is already familiar. There is indeed no crying need for special texts on chemical calculations or chemical arithmetic. Such books do, indeed, offer a variety of problems for drill work, and in so far they are helpful, especially to the busy teacher who often lacks the time to devise his own problems. On the other hand, books of this kind generally contain many problems that never arise in practical work, and the present volume is no exception to this.

The volume is neatly printed on good paper, and the binding is in keeping with the other mechanical features of the book.

LOUIS KAHLENBERG

UNIVERSITY OF WISCONSIN

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*The Principles of Evolution.* By JOSEPH McCABE. Baltimore: Warwick & York. Pp. 264. \$0.40.

This is one of a series of popular presentations of great subjects in "The Nation's Library." The latter is an English project, our American firm co-operating in handling the series. The author is a writer rather than a scientist, and previously published the *Story of Evolution*, the *Evolution of Mind*, etc. The little handbook is a very good statement of evolution and its bearing in philosophy. It is impossible to outline the course of evolution and the evidence of it in so small a book, taking account not only of organic evolution,

but of inorganic, stellar, molecular, social, and historic evolution, but the author has done surprisingly well in the attempt. The reading of the book will give a layman a very good notion of the scope and method of evolution, as the average well-informed scientist thinks of it at present. The author is a thorough-going Darwinian, believing that natural selection is the best means yet suggested to account for the way in which evolution has been brought about in the organic world. He also is a firm believer in sexual selection to account for secondary characters. While he is reasonably fair, he is by no means unbiased, and he dismisses some of the opposing theories rather curtly. He thinks that the name Mendelism is "an excessive compliment to a certain very ingenious and industrious Abbot, Mendel." He states that the most interesting feature of recent Mendelism is the postulation of formative elements in the germ which will build up specific characters, and that only a small minority of biologists, embryologists, and zoologists accept the theory. The latter statement may be true in regard to the presence of specific formative elements in the germ, though even that is doubtful; but the lay reader will get, as the significance of the passage, that it is Mendelism itself that is rarely accepted, which is quite untrue. On p. 109, discussing the opinions of the Mutationists (often called Mendelists!), he states that "fluctuations are said to be due to environmental influence, and to be transmissible. Mutations are due to changes in the determinants, and are not transmissible." He has the notion of transmission exactly reversed in this passage. He discusses the transmission of acquired modifications, and concludes that the matter is still unsettled and must await further evidence, and yet throughout the book he constantly slips into the assumption that such modifications are transmitted. He is largely an adherent of the modified nebular hypothesis. He does, in a footnote, refer to the planetesimal hypothesis, but with the comment that few astronomers believe in it. While there are several points to be criticized, yet on the whole the book is to be recommended as a very readable and fair presentation of the subject.

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E. R. D.

*Religious Education in the Family.* By HENRY F. COPE. Chicago: The University of Chicago Press, 1915. Pp. xii+298. \$1.25.

This is a book both for private reading and for class work. It is simple in style, trenchant in utterance, and full of quotable paragraphs. For class work, the references for study, the books suggested for further reading, and the topics for discussion add much to its practical value. The author knows his subject and knows what he is after. He is abreast with the times religiously and psychologically, and puts a "large round-about common-sense" into the entire discussion.

He defines education as "the orderly development of lives, according to scientific principles, into the fulness of their powers, the realization of all their

possibilities, the joy of their world, the utmost rendering in efficiency of their service" (p. 47). A religious education "seeks to direct a religious process of growth with a religious purpose, for religious persons." He suggests that the problem of religious education is not one of mechanics but persons. The child is a unit. Virtues are not in compartments. The religious education of a child cannot be left to times and seasons. It is a work of Monday and all the week as well as of Sunday. It must be fostered in daily tasks and through the entire life of the home. The home is the place to train human beings to harmonious usefulness in their world. The family is our great opportunity to make a good future for society.

The entire book is a manly plea for painstaking work with children by all who influence them.

The author gets upon basic principles in such sections as that upon "The Organization of Loyalty" (p. 57). His practical suggestions are wise and far-reaching in such chapters as those upon "Stories and Reading," "The Use of the Bible in the Home," "Sunday in the Home," "Family Worship," "The Family and the Church," etc. His chapters upon "Dealing with Moral Crises" will help many a parent and teacher in their crises of doubt as to how to deal with them.

The author sets no easy task before those who would make full use of the home for religious education. He sees the weakness of modern homes in this respect. He would doubtless agree with a chief of police in one of our cities, who said, "the greatest need of today is a reform school for parents." But he also sees sure results if parents do their part. The harvest is certain if the field is rightly tilled by the home.

This book was well worth writing, which makes it well worth reading. It is a book for every home. And it will be yet more valuable to those who can study and discuss its contents in classes or clubs and in Bible schools. It has two valuable appendixes and a good index.

HENRY FAVILLE

LAKE MILLS, WIS.

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*State and County School Administration.* Vol II, "Source Book," by ELLWOOD P. CUBBERLEY and EDWARD C. ELLIOTT. New York: Macmillan, 1915. Pp. xxi+728.

This is a book for the serious student of educational administration, and not for the general, or at least the superficial, reader. As the title indicates, it is a book of original documents for the most part. There is some comment by the authors, mainly by way of introducing the records and opinions relating to the various aspects of educational organization and administration which are discussed. It is an excellent book of reference for all who are concerned with the administration of large educational units. It will make an indispensable textbook for universities, colleges, and normal schools offering

courses relating to the administration of education. The book ought also to be indispensable to all legislators who propose or vote on educational measures.

In a book of this kind the chief requirement is the presentation of the best typical examples of (1) educational organization and legislation; (2) state and county control of school buildings and equipments; (3) the training and certification of teachers; (4) the various local and quasi-local agencies concerned with the support of educational work and the improvement of teachers in service; and (5) the health and sanitary control of educational work. There is, of course, an almost unlimited amount of material from which selection can be made. This source book covers the entire range of school administration, including federal and state policies, practically from the beginnings of state legislation down to our own times. Most persons regard all this material as an unorganized, inchoate, unintelligible mass of legal enactments, regulations, and opinions. The chief task of the authors of this volume has been to establish system in the midst of chaos in these records, and to show by proper illustrations what federal, state, and county attitudes have been and are toward the organization and maintenance of schools of every grade and character. They have had the further task of selecting opinions of distinguished statesmen and students and administrators of education relating to the function of education in a democratic state, and the control which the state should exercise over its educational institutions.

The authors do not offer a comprehensive view respecting the support and control of education which should be undertaken by the federal government or by states or counties. They present the records relating to these matters, and these records show definitely marked tendencies; but there is little or no argument in the book regarding wise or unwise policies which have been or are about to be adopted by states. We are informed, however, that a companion volume to this source book will soon be published, and that this will deal with principles. Doubtless in this forthcoming volume we shall get the benefit of the expert knowledge of these authors respecting the policies which should be followed by states and counties in the maintenance of the schools, including their organization, their equipment, their curricula, taxation for their support, providing them with competent teachers, and so on. These problems are so immense and important and at the same time so complicated that no one but a specialist in school administration can effectively discuss them. Should states and counties, through their educational officers, have mainly a suggestive and advisory relation to the schools, or should they play the dominant rôle in administering them? Should the individual superintendent, principal, or teacher have large freedom in deciding on the course of study, the methods of teaching, the textbooks to be used, and so on, in the schools under his charge, or should these matters all be settled by county or state officials? Should the state contribute largely to the support of individual schools, or should communities support their own schools, generously

or niggardly, according to their appreciation of the importance and needs of the schools?

One reads through this source book and he notes how different states have attempted to solve these problems. But the reader would like now to have an expert discussion of policies and undoubtedly this will be furnished in the "Book of Principles." The present volume should be regarded as a book of exhibits, with which every student of educational administration should be familiar. The companion volume, we trust, will be a book of interpretation, suggestion, and prophecy.

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*Teaching of History in Elementary and Secondary Schools.* By HENRY JOHNSON. New York: Macmillan, 1915. Pp. 496.

This work embodies the most thorough treatment yet made in this country of the subject indicated by the title, and the author's standing in his field is guaranty of its worth. It is more than a discussion of history teaching as now practiced, both in the United States and in the leading countries of Europe; for in connection with every phase of the subject is introduced the history of history teaching. Thus the ideas and practices of other times throw light upon our own conceptions and enable us to view the latter in perspective.

Opening with a chapter upon what history is, the author reaches next the problem of grading history, and the question of aims and values. He concludes that "the most fundamental and the most comprehensive" aim of history teaching is "to make the world intelligible." Next is taken up the subject of history in the schools of Europe and the United States; then, the biographical approach and the study of social groups. Practical methods in making history real, especially by the use of aids to visualization, are discussed in three chapters; the subject of textbooks and their use occupies two chapters; these are followed by discussions of collateral reading, the historical method, correlation, and examinations.

The author has no new theory to exploit and rides no hobby. He is essentially critical in his attitude. His style is so self-restrained as to be lacking in enthusiasm even over the ideas of which he most approves. Thus the book has the defects of its qualities. The experienced and well-informed teacher, especially one who has followed the development of history teaching during the past twenty-five years, will find keen enjoyment in Professor Johnson's evaluation of the various ideas that have successively come uppermost in this field. But the student who is yet to enter active work will at some points find the book lacking in definiteness of emphasis upon the truths that the author believes in most thoroughly. At such points (e.g., pp. 165, 185, 218-20, 394) the student will wish that the author had worked out more in detail and stated with greater positiveness the arguments for fundamental principles and approved methods. We are indeed glad to have a book upon this subject which

finds good in many places and leaves the advocacy of infallible solutions "to enthusiasts who believe in panaceas." But, on the other hand, a sharp implement is often required in making deep impressions; and so, perhaps, a subordination of the historical background and a more positive insistence upon the best ideas would prove to be of greater service to the greater number who will read and study the book.

Upon one subject, the relation of history to government, the positive statement of the author's view is interesting. He says, "the writer is strongly of the opinion that government should be taught as a separate subject both in the elementary and in the secondary school" (footnote, p. 412).

In five useful appendices there may be found a bibliography upon each phase of the subject that has been discussed and a set of questions upon each chapter of the text.

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*The Boy Problem in the Home.* By WILLIAM BYRON FORBUSH. Boston: Pilgrim Press, 1915. Pp. xi+287.

Mr. Forbush has made a book principally of quotations from a large number of writers on child nature and ethical, moral, and social education. The book is popular in character and is designed for parents who have not read widely in modern literature relating to childhood and youth. Mr. Forbush always writes in a simple, concrete way. He is especially facile in describing actual instances to illustrate the principles which he presents. *The Boy Problem in the Home* contains many examples of the natural traits of childhood and youth, and ways and means of treating the young so that they may acquire self-control.

Mr. Forbush thinks that if children were understood it would be found that they are rarely, if ever, deliberately disobedient, mischievous, or malevolent. His mission in this book is to interpret childhood to parents, and to counsel patience, generosity, and sympathy in dealing with the offenses of a child or a youth. There is considerable sentiment in it, but this is probably necessary in order to awaken the sympathies of the parents for whom it is designed. There is some repetition throughout the book, but the untrained parent probably needs to have principles of child nature and of training presented in different phrases in order that he may comprehend them. This repetition is inevitable considering the fact that in Part I the "Home Training of Young Boys" is considered, in Part II the "Home Training of School Boys" and in Part III the "Home Training of Adolescent Boys." In each Part "Methods of Government," "Government by Punishment," "Government by Reward," "Sex Discipline," "Religious Nurture," and "Facts for Encouragement" are discussed. It is, of course, impossible to discuss "Government by Punishment," for instance, in dealing with schoolboys and

adolescents, and not repeat some of the principles presented in discussing the government of young boys by punishment.

The type of parent who will be helped by this book is the one who deals in a rough-and-ready way with his children, who tends to suppress them and to be autocratic with them, who is never confidential with them, and who never apologizes when he is shown to be in error, mainly because he really does not recognize that, as a parent, he can be in error. The book will also help parents who are sentimental in their relations with their children, who never are firm with them, who overlook all their faults, and who proceed on the principle that if children be indulged in their shortcomings when they are small they will outgrow them when they enter their teens. But the parent who has already come to take a biological view of his children's development; who regards all their impulses and tendencies as "natural," but who appreciates that they must be led as rapidly as possible to adapt themselves to the contemporary social order; who is well poised in dealing with his children, but who is decisive in crucial situations; who realizes that penalties must sometimes be administered for misconduct, but who does not rely mainly upon dermal pain for the correction of wrong action, but who is rather resourceful in devising punishments which connect themselves naturally with the deeds they are designed to control—such a parent would find little, if anything, of service in this book. But parents of the latter type are so rare that the book may be commended to practically all those who have charge of children in the home. It may be added that most of what is presented in the book applies to the training of girls as well as boys.

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CORRECTION.—Two errors in a review of *English Prose and Verse from Beowulf to Stevenson*, by Henry S. Pancoast, which appeared in the January (1916) *School Review*, require correction. The statement was made that William Blake "is entirely ignored." There are nine poems by Blake. Francis Thompson is represented by one prose selection, but not by verse.

THE EDITORS OF "THE SCHOOL REVIEW."

## BOOK-NOTES

BOYCE, ELLA M. *Enunciation and Articulation*. Boston: Ginn & Co., 1915.

Revised ed. Pp. 90. \$0.30.

A practical handbook for primary schools, intended to cure the "wretched American voice."

AYRES, LEONARD P. *A Measuring Scale for Ability in Spelling*. New York: Russell Sage Foundation, 1915. Advance ed. Pp. 58. Not sold.

KENNGOTT, A. *Jurg Jenatsch in Geschichte, Roman und Drama*. St. Louis: Publications of Washington University, Series IV, Vol. II, Whole No. VIII, 1915. Pp. 177-220. \$1.00.

BOOTH, MARY JOSEPHINE. *Lists of Material Which May Be Obtained Free or at Small Cost*. Chicago: American Library Association Publishing Board, 1915. Pp. 67. \$0.25.

Intended for small libraries to prove "of use in supplementing at small expense the books and magazines already on the shelves." Inclusive in topic, selective in idea.

ROBERTS, S. C. *A Picture Book of British History, Vol. II, 1485-1688*. Cambridge: University Press, 1915. Pp. 68. 35. 6d. net (\$0.90).

Two hundred carefully culled illustrations with notes. Like the first volume, it attempts "to provide systematic pictorial illustration for historical teaching."

WILCOX, WILLIS H. *Daily English Lessons, Book Three—Grammar and Composition*. Philadelphia: J. B. Lippincott Co., 1915. Pp. x+309.

Covers, however cursorily, the whole range of composition work from oral English to writing verse.

MONTGOMERY, GEORGE R. *Talking English, a Pronouncing Manual for Teaching the English Language*. 3d ed. New York: Thompson, Brown & Co., 1915. Pp. xiv+217. \$0.90.

An exceedingly interesting handbook for the teaching of English to foreigners. The subject-matter might, however, have been better selected. A new system of diacritical marks is employed.

KITTRIDGE, G. L., and FARLEY, F. E. *Advanced English Grammar*. Boston: Ginn & Co., 1915.

An elaborate treatment, playing up definitions and examples. Suitable only for advanced classes.

JENKINS, FRANCES. *Reading in the Primary Grades*. Boston: Houghton Mifflin Co., 1915.

An excellent addition to the "Riverside Educational Monographs." Especially insists that reading is a process of thinking. Suggests various methods of teaching.

GREENLAW, EDWIN. *Familiar Letters*. Chicago: Scott Foresman & Co., 1915.

A Lake English classic. Admirably selected letters to be used as models by high-school classes. The title "Familiar" suggests the intimate style of personal communication which characterizes all the models.

COOK, A. S., and BENHAM, A. R. *Specimen Letters*. Boston: Ginn & Co., 1915.

A textbook of similar nature. The letters treat a somewhat wider range of human interests; consequently many of them are written in more formal style.

SINDELAR, JOSEPH C. *Morning Exercises for All the Year*. Chicago: Beckley-Cardy Co., 1915. \$0.60.

Morning exercises for elementary schools, for every day of the school year. Through concrete examples in story and verse the children are taught to appreciate nobility of character. A very great variety of appropriate readings, songs, stories, anecdotes, poems, suggested. Birthdays of noted people indicated for each date; also important historical events, holidays, etc.

HEGNER, ROBERT W. *Directions for Laboratory and Field Work in Zoölogy*. New York: MacMillan, 1915. Pp. xiii+73.

To accompany Mr. Hegner's *Practical Zoölogy*. See Review in the December, 1915, number.

HOLLISTER, HORACE A. *High School and Class Management*. Boston: D. C. Heath & Co., 1915. Pp. xvi+314.  
Review later.

ROGERS, LESTER BURTON. *A Comparative Study of the Township, District, Consolidated, Town and City Schools of Indiana*. Menasha: Collegiate Press, 1915. Pp. 210.  
Notice later.

LEAVITT, FRANK MITCHELL, and BROWN, EDITH. *Prevocational Education in the Public Schools*. Boston: Houghton Mifflin Co., 1915. Pp. vi+245.  
Review later.

MOULET, ALFRED. *L'Ecole primaire et l'Education morale démocratique*. Paris: Hachette et Cie., 1915. Pp. viii+382. Fr. 10.  
Review later.

